

Fig. 1

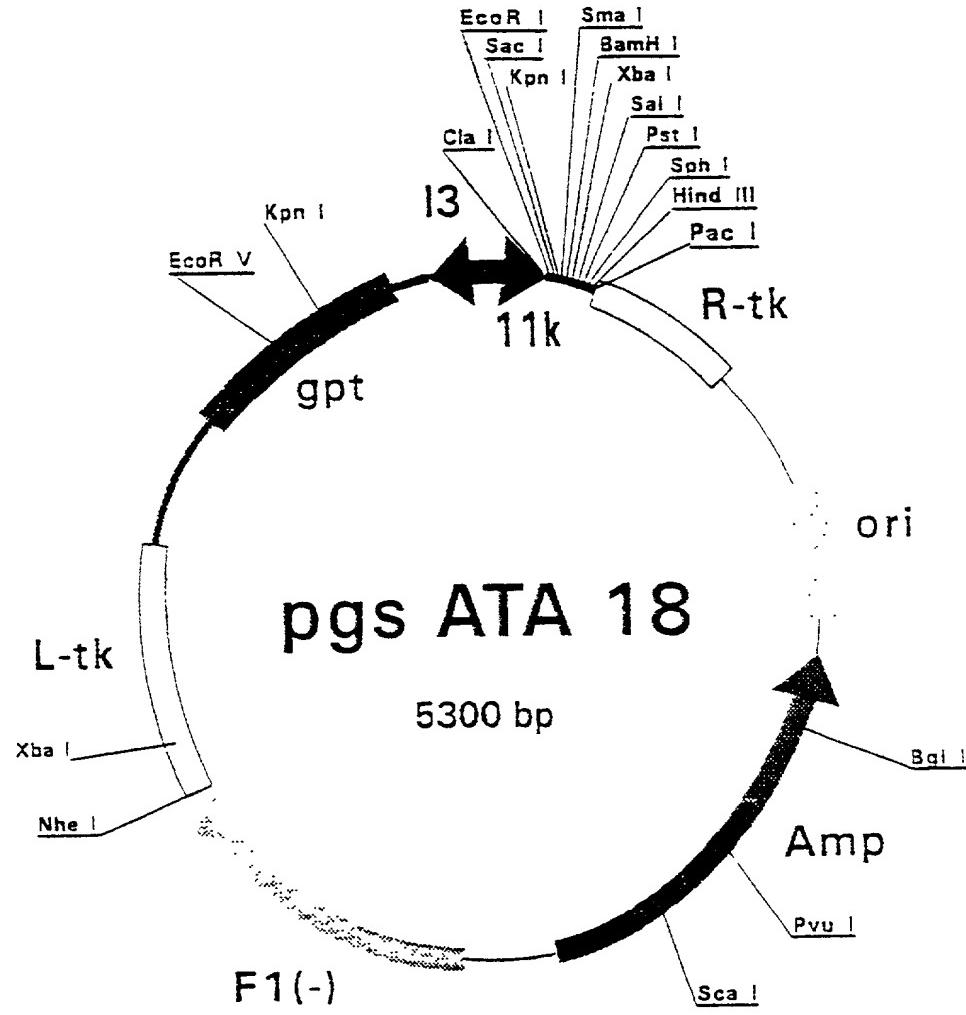


Fig. 2

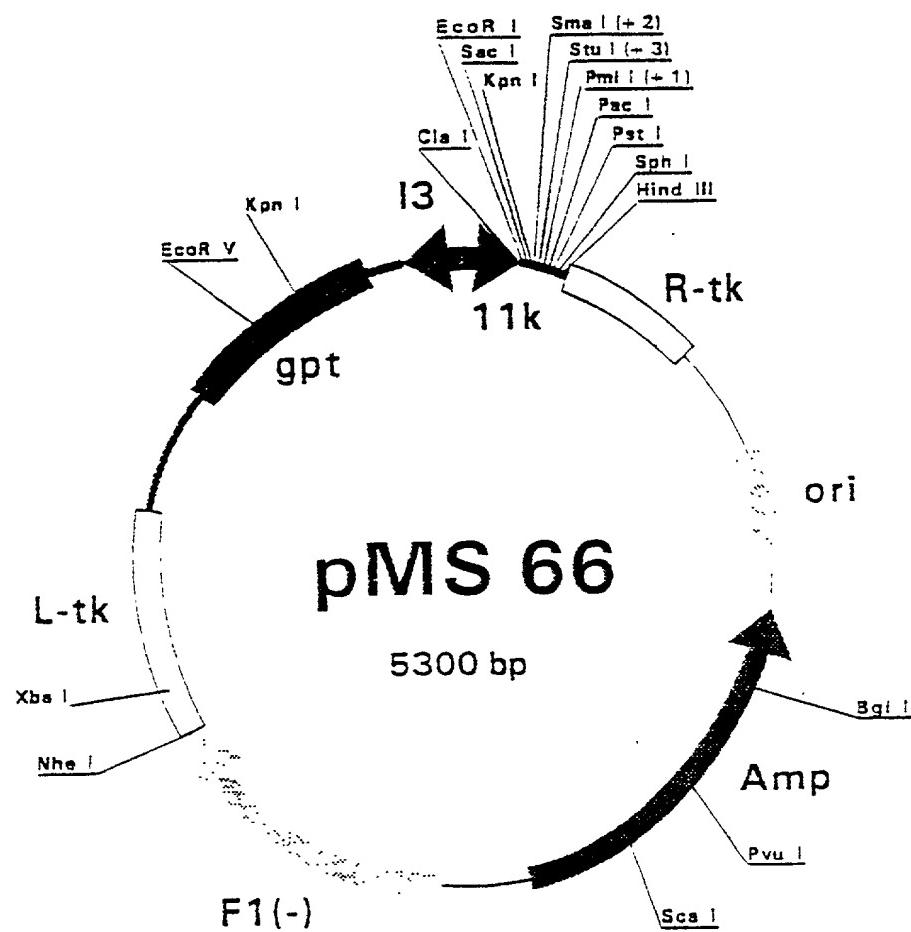


Fig. 3

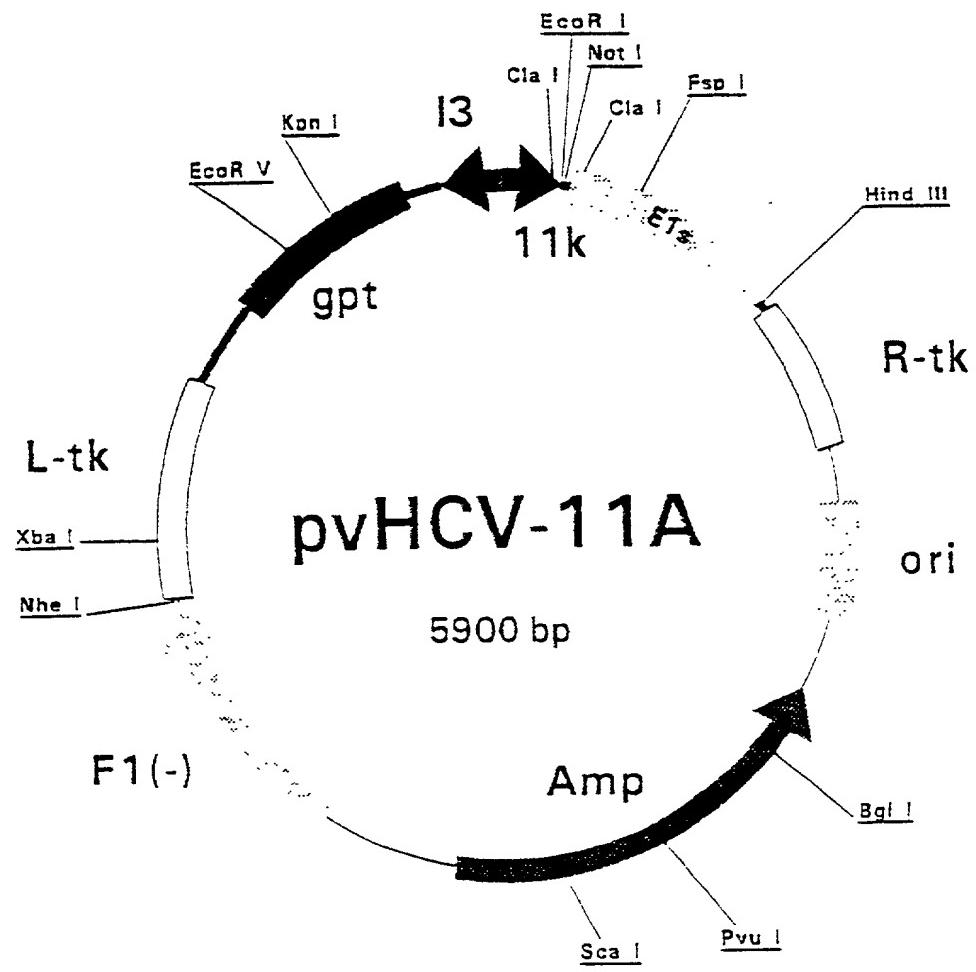
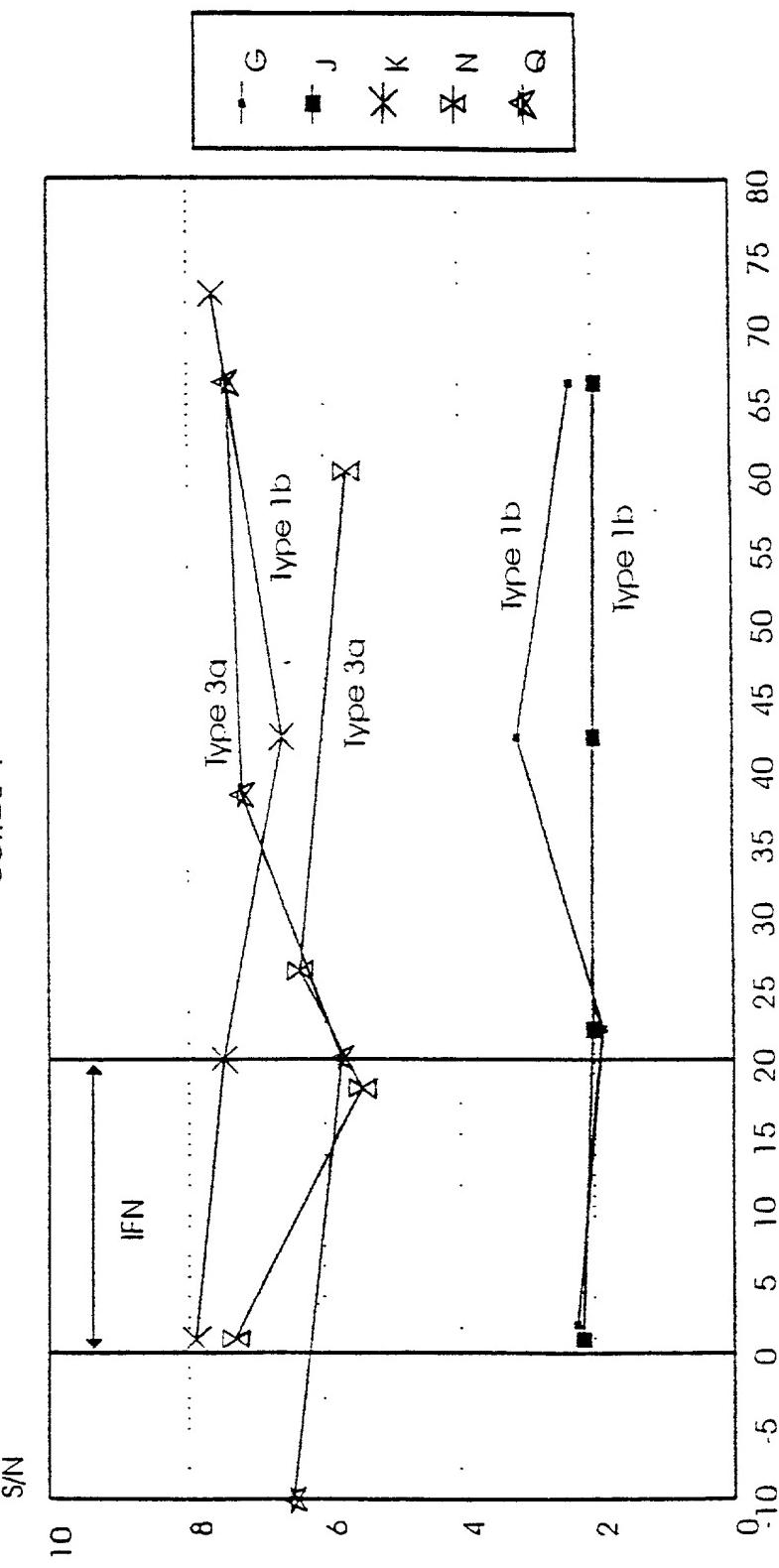


Fig. 4

### Anti-E1 levels in NON-responders to IFN treatment

Series 1

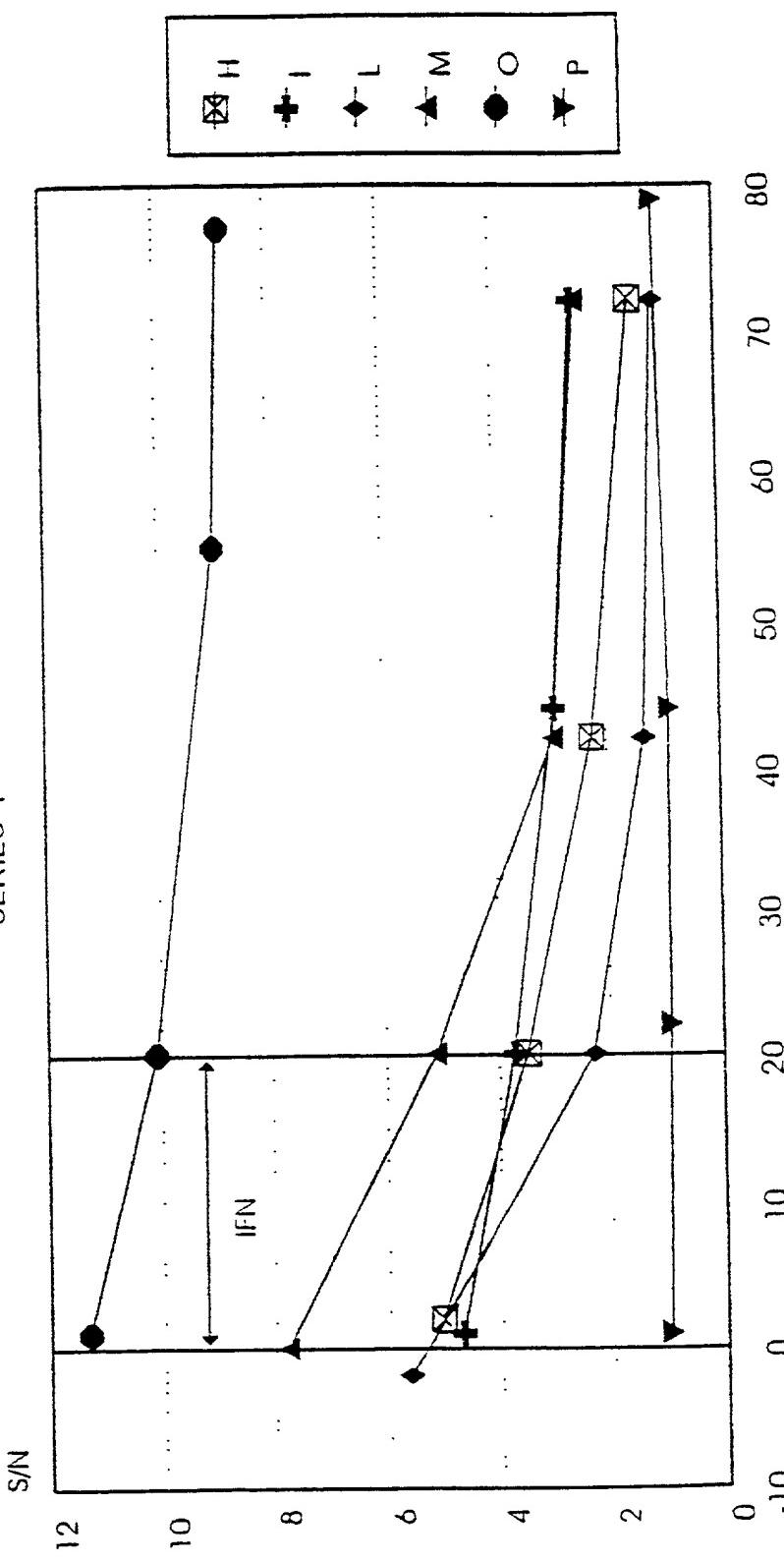


weeks after start of treatment

Fig. 5

Anti-E1 levels in RESPONDERS to IFN treatment

SERIES 1

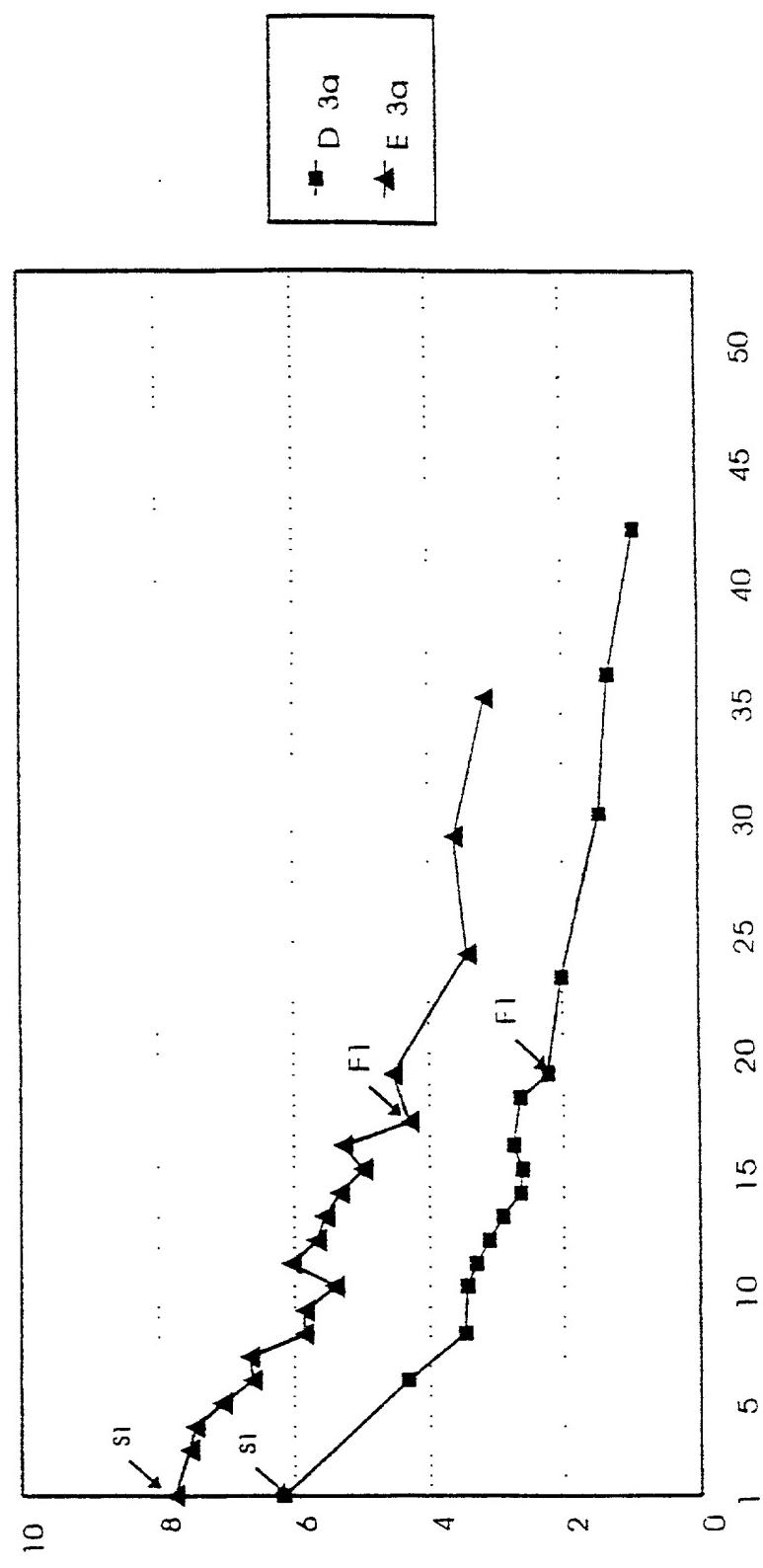


weeks after start of treatment

Fig. 6

Anti-E1 levels in patients with COMPLETE response to IFN

S/N  
SERIES 2

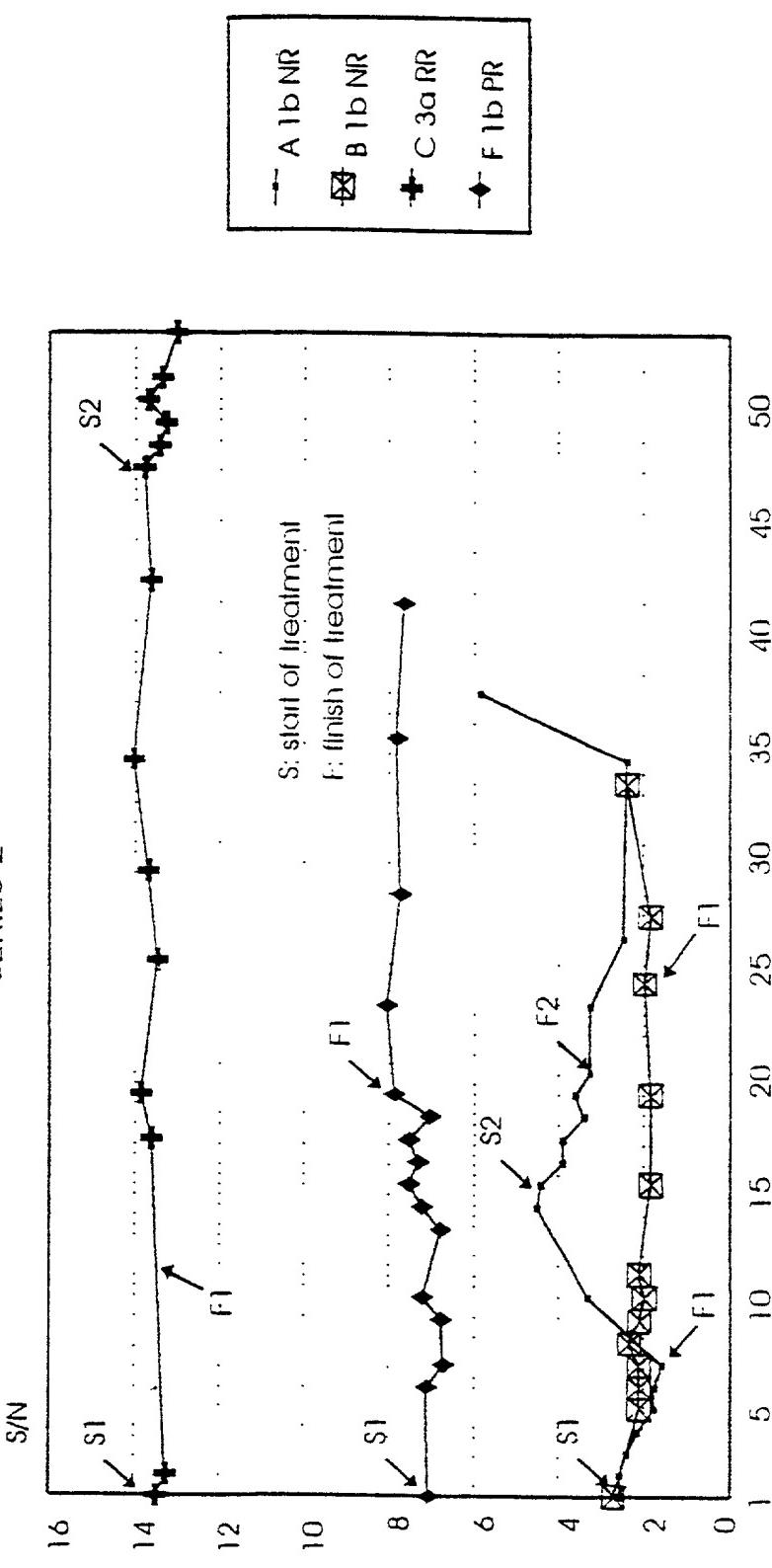


months after start of treatment

Fig. 7

## Anti-E1 levels in INCOMPLETE responders to IFN treatment

SERIES 2

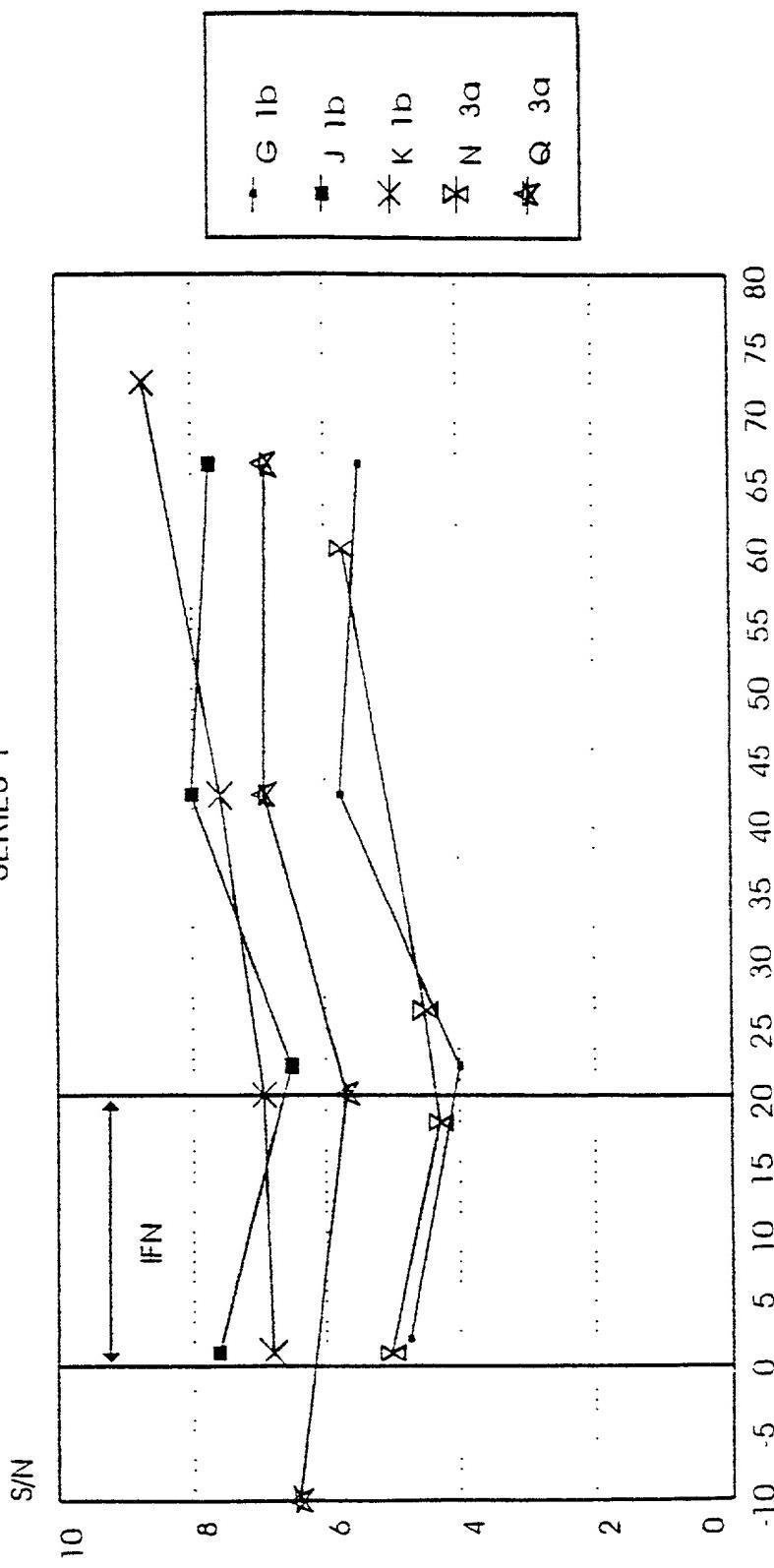


months after start of treatment

**Fig. 8**

### Anti-E2 levels in NON-RESPONDERS to IFN treatment

SERIES 1



weeks after start of treatment

Fig. 9

### Anti-E2 levels in RESPONDERS to IFN treatment

SERIES 1

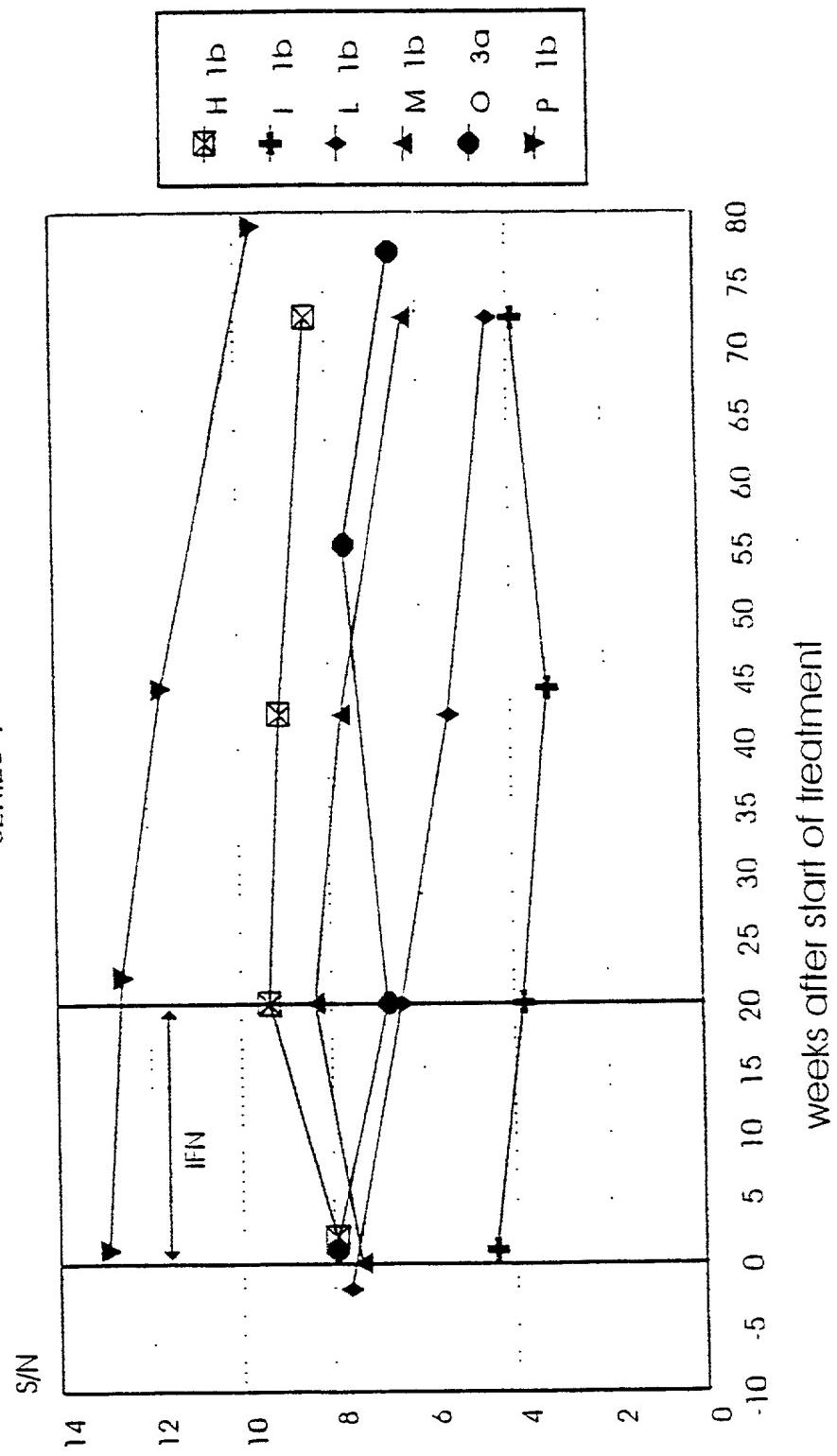
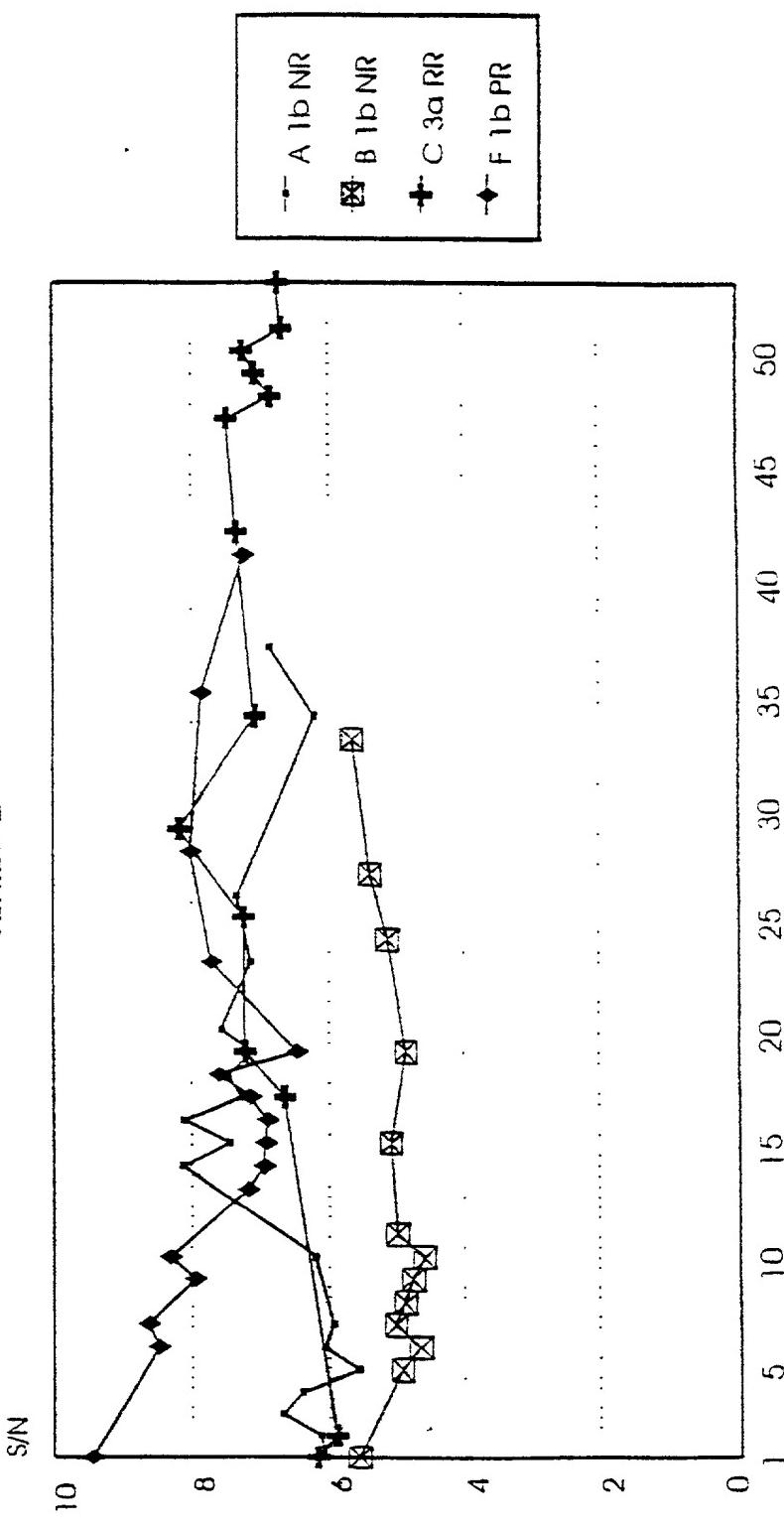


Fig.10

### Anti-E2 levels in INCOMPLETE responders to IFN treatment

SERIES 2

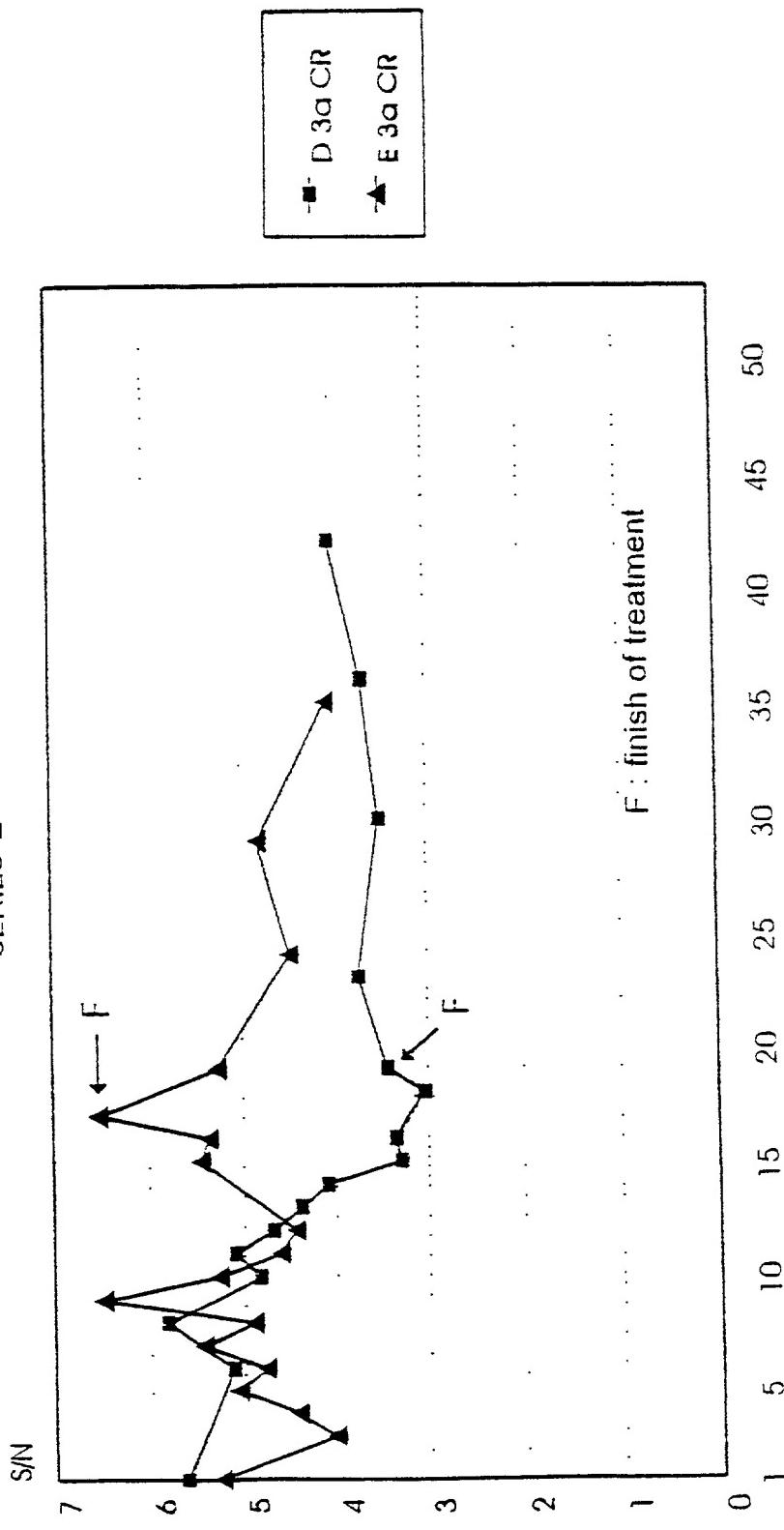


months after start of treatment

Fig. 11

### Anti-E2 levels in COMPLETE responders to IFN treatment

SERIES 2



F: finish of treatment  
months after start of treatment

Fig. 12

### Human anti-E1 reactivity competed with peptides

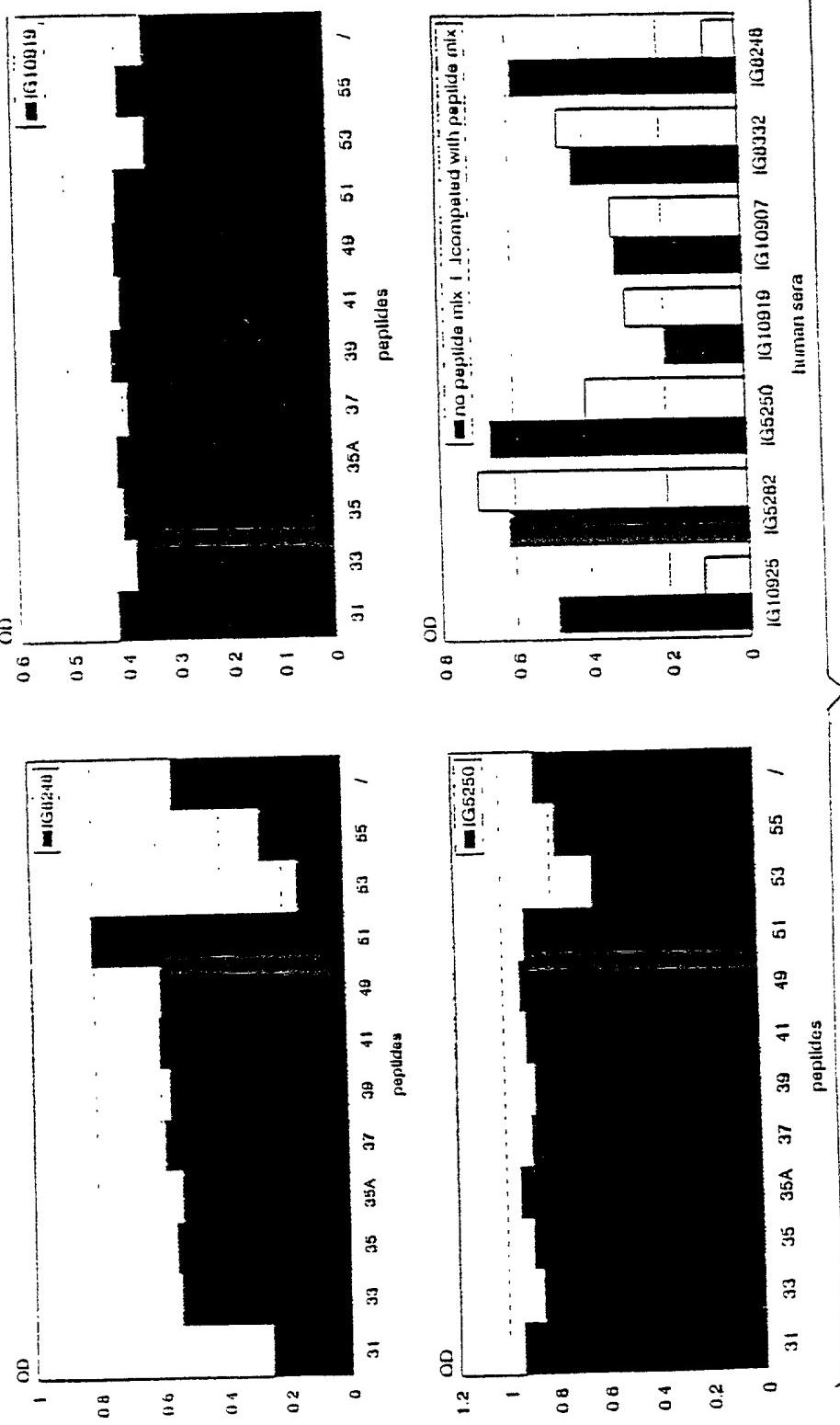


Fig.13

## Competition of reactivity of anti-E1 Mabs with peptides

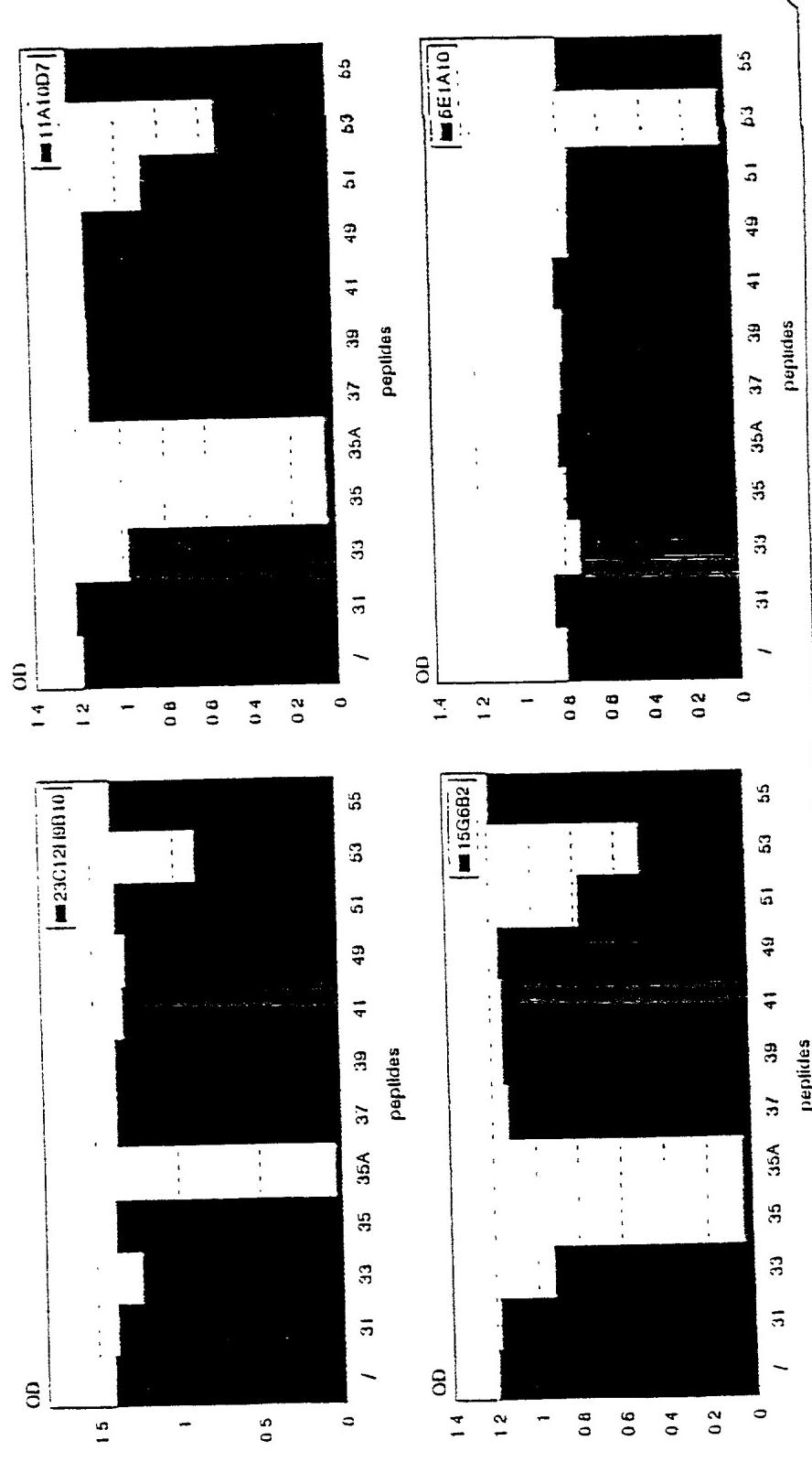
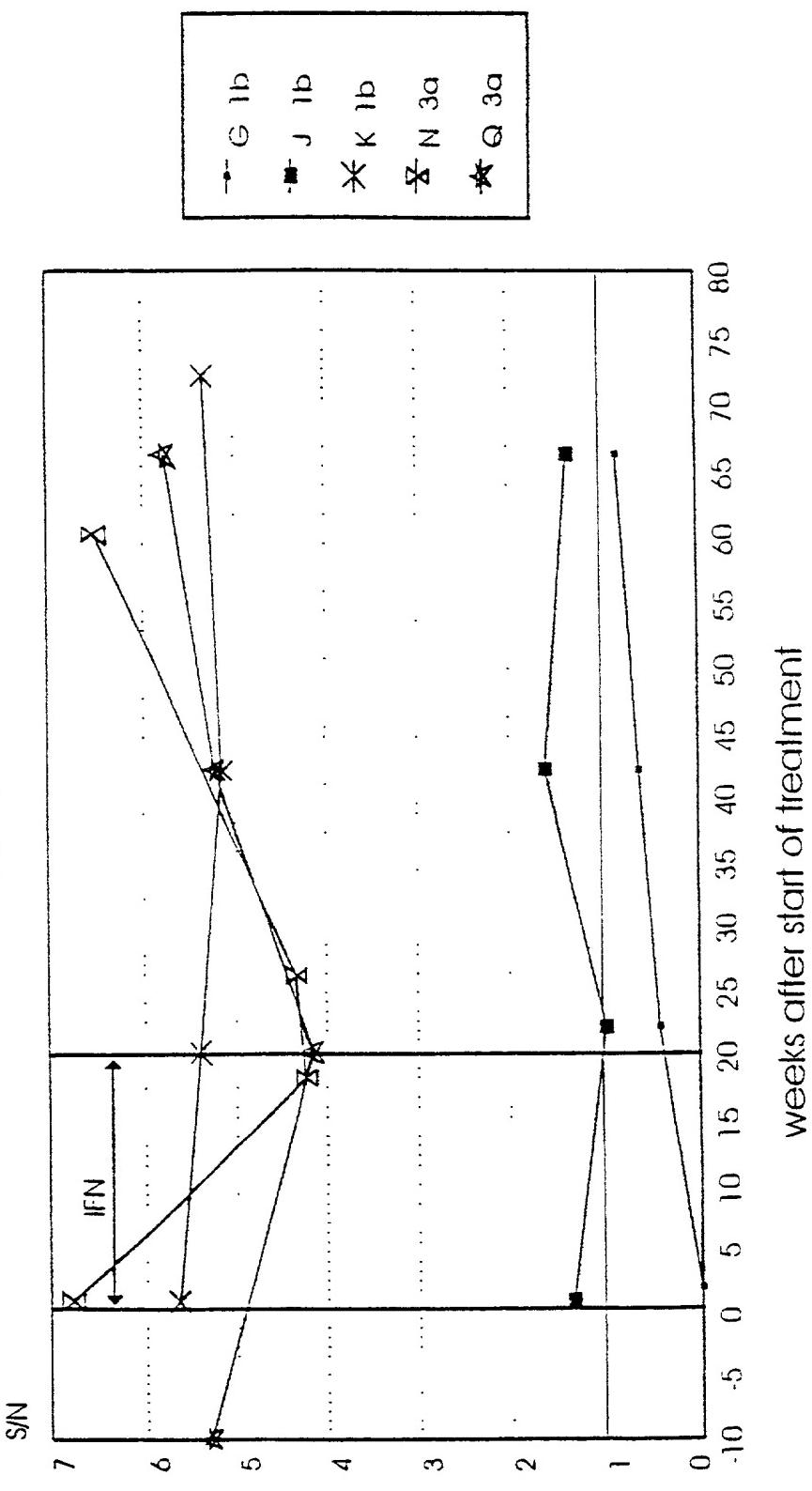


Fig.14

### Anti-E1 (epitope 1) levels in NON-RESPONDERS to IFN treatment

SERIES 1



weeks after start of treatment

Fig. 15

### Anti-E1 (epitope 1) levels in RESPONDERS to IFN treatment

SERIES 1

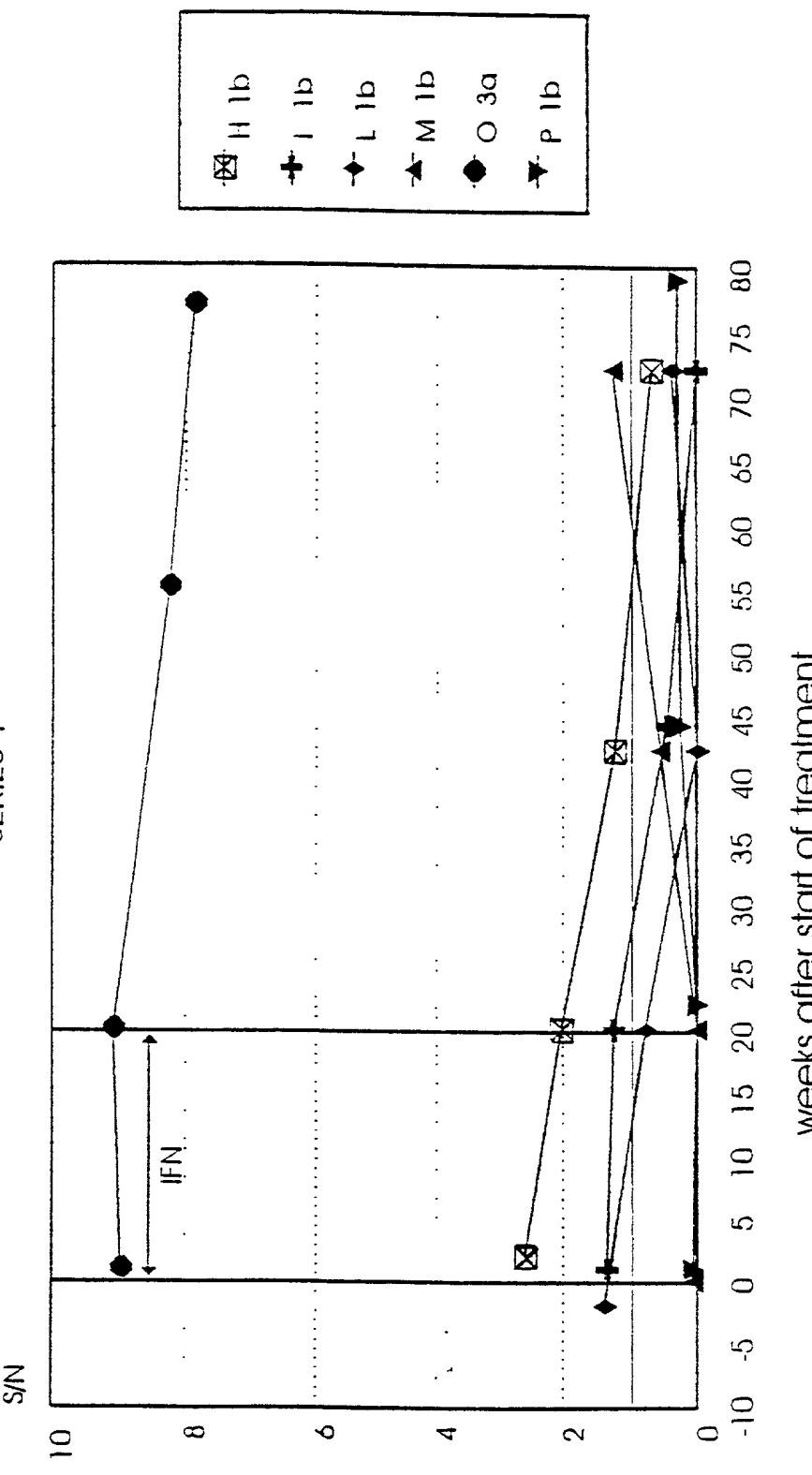
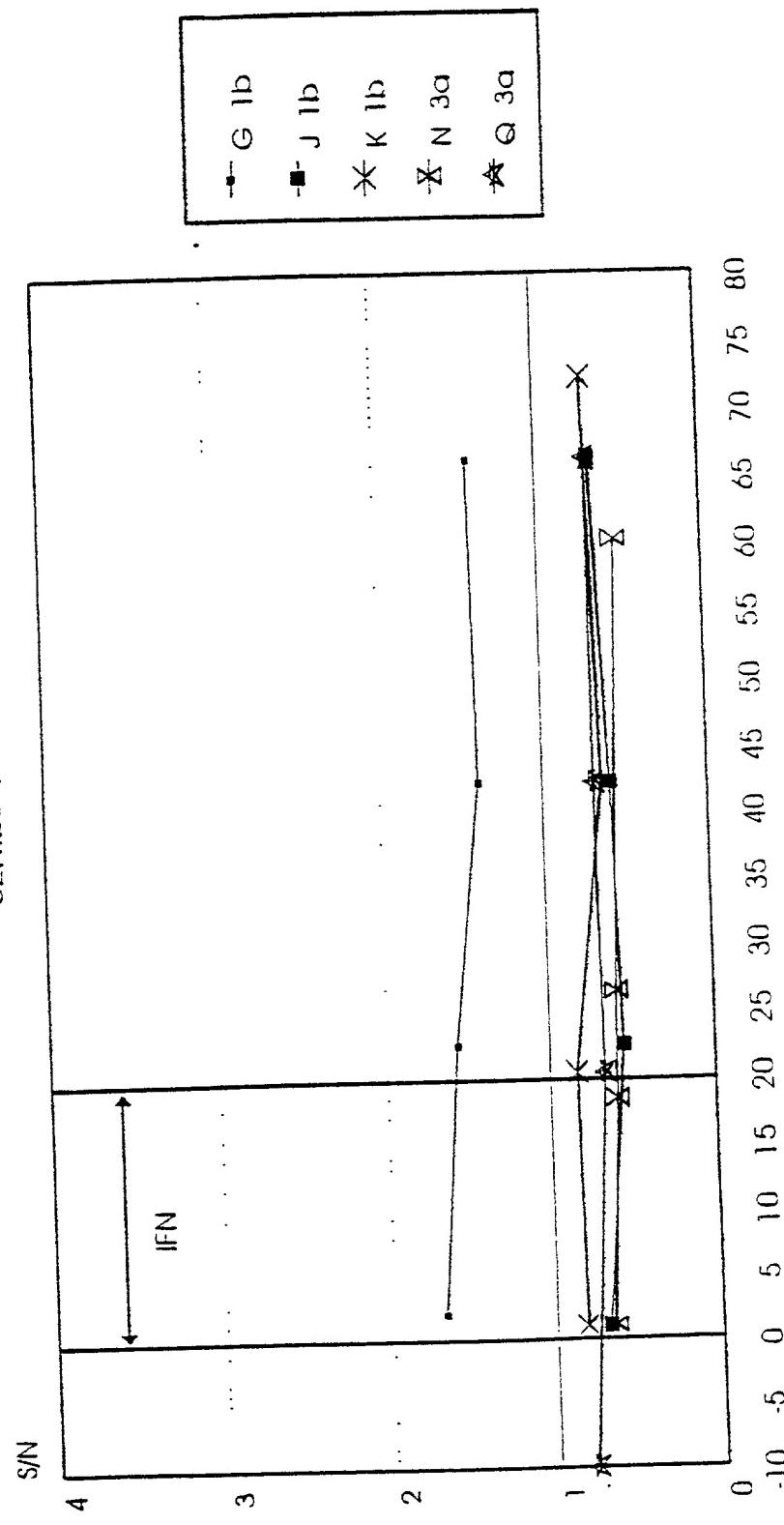


Fig. 16  
Anti-E1 (epitope 1) levels in RESPONDERS to IFN treatment

Anti-E1 (epitope 2) levels in NON-RESPONDERS to IFN treatment

SERIES 1

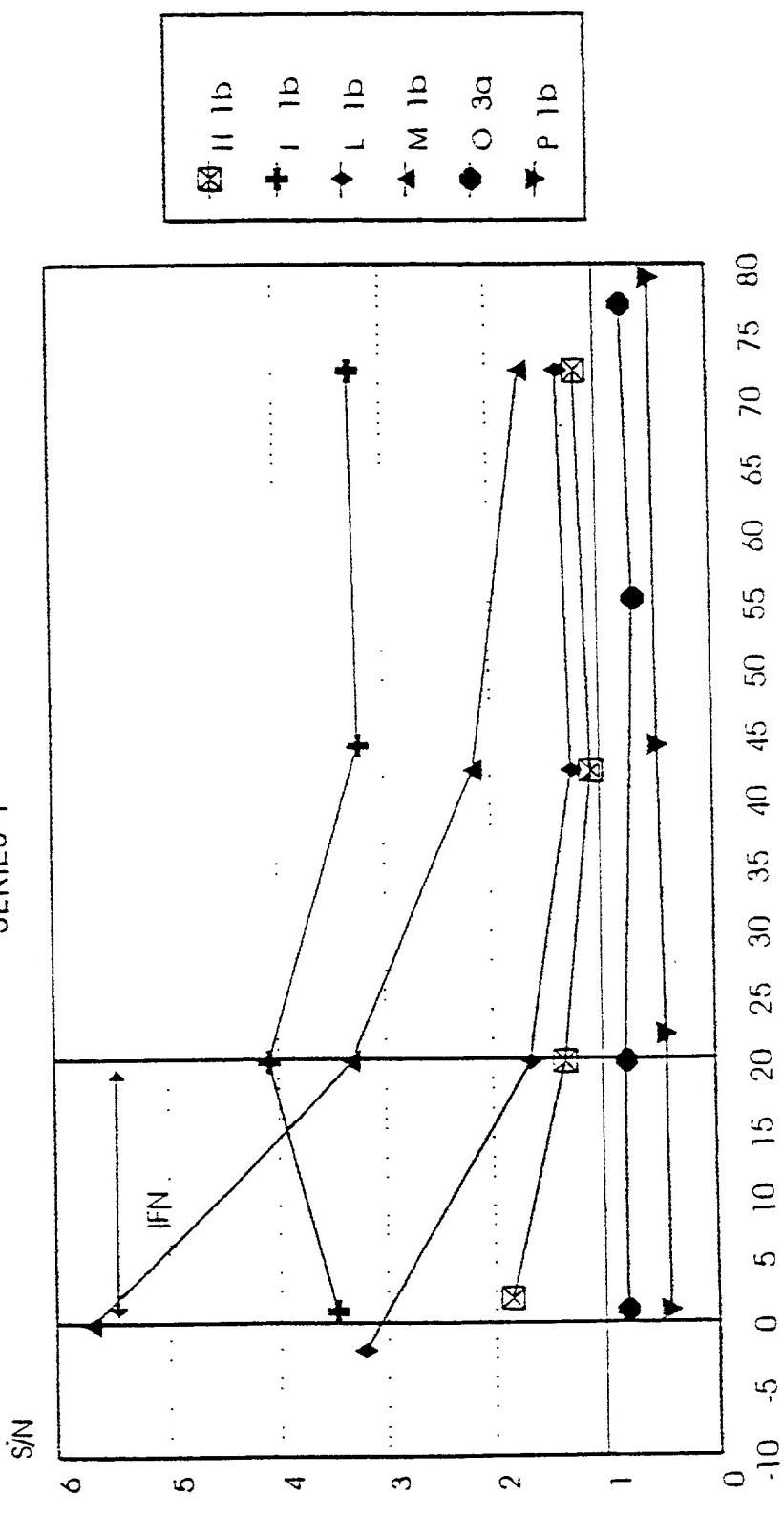


weeks after start of treatment

Fig.17

### Anti-E1 (epitope 2) levels in RESPONDERS to IFN treatment

SERIES 1



weeks after start of treatment

Fig. 18

## Competition of reactivity of anti-E2 Mabs with peptides

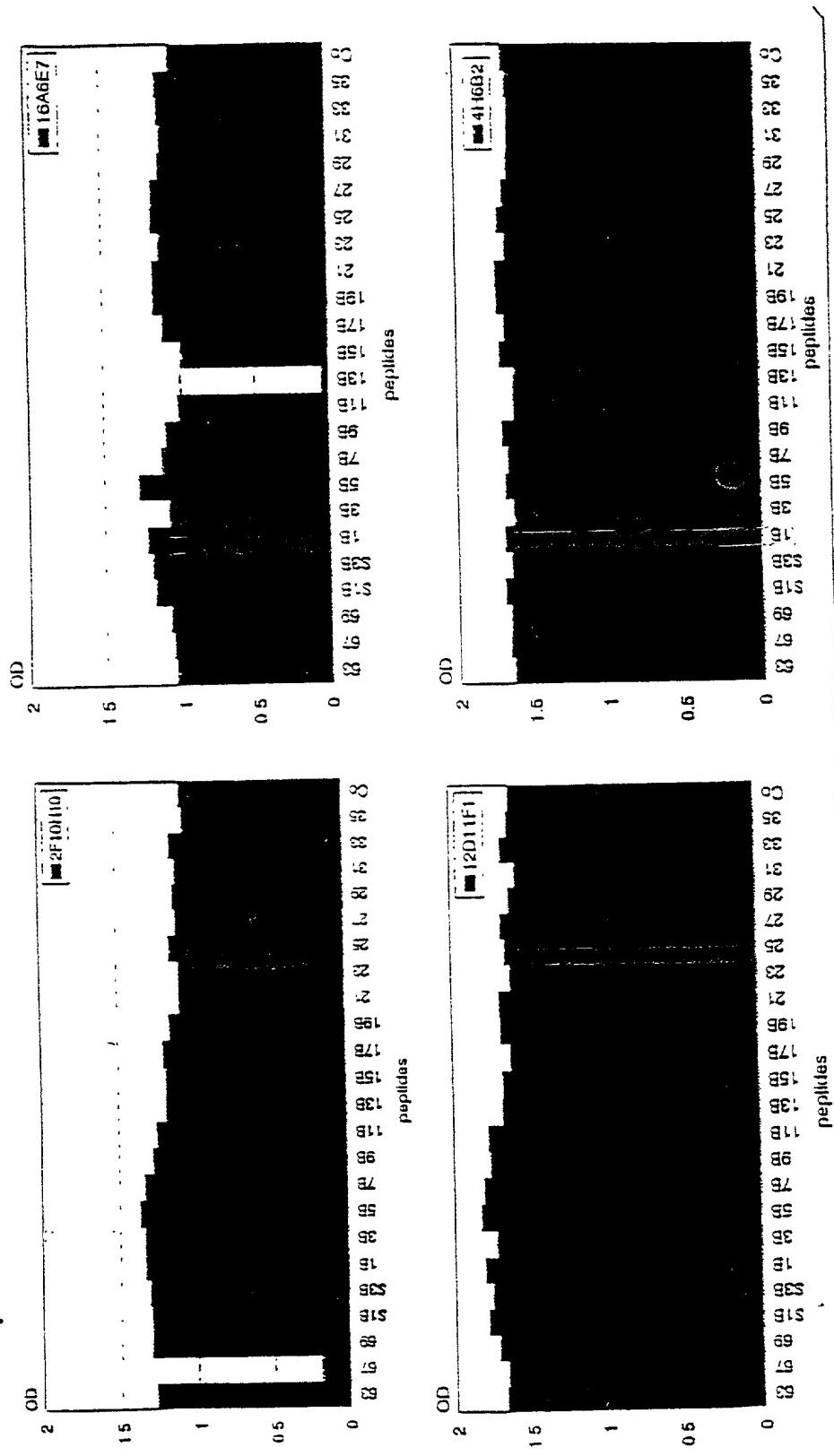


Fig.19

## Human anti-E2 reactivity competed with peptides

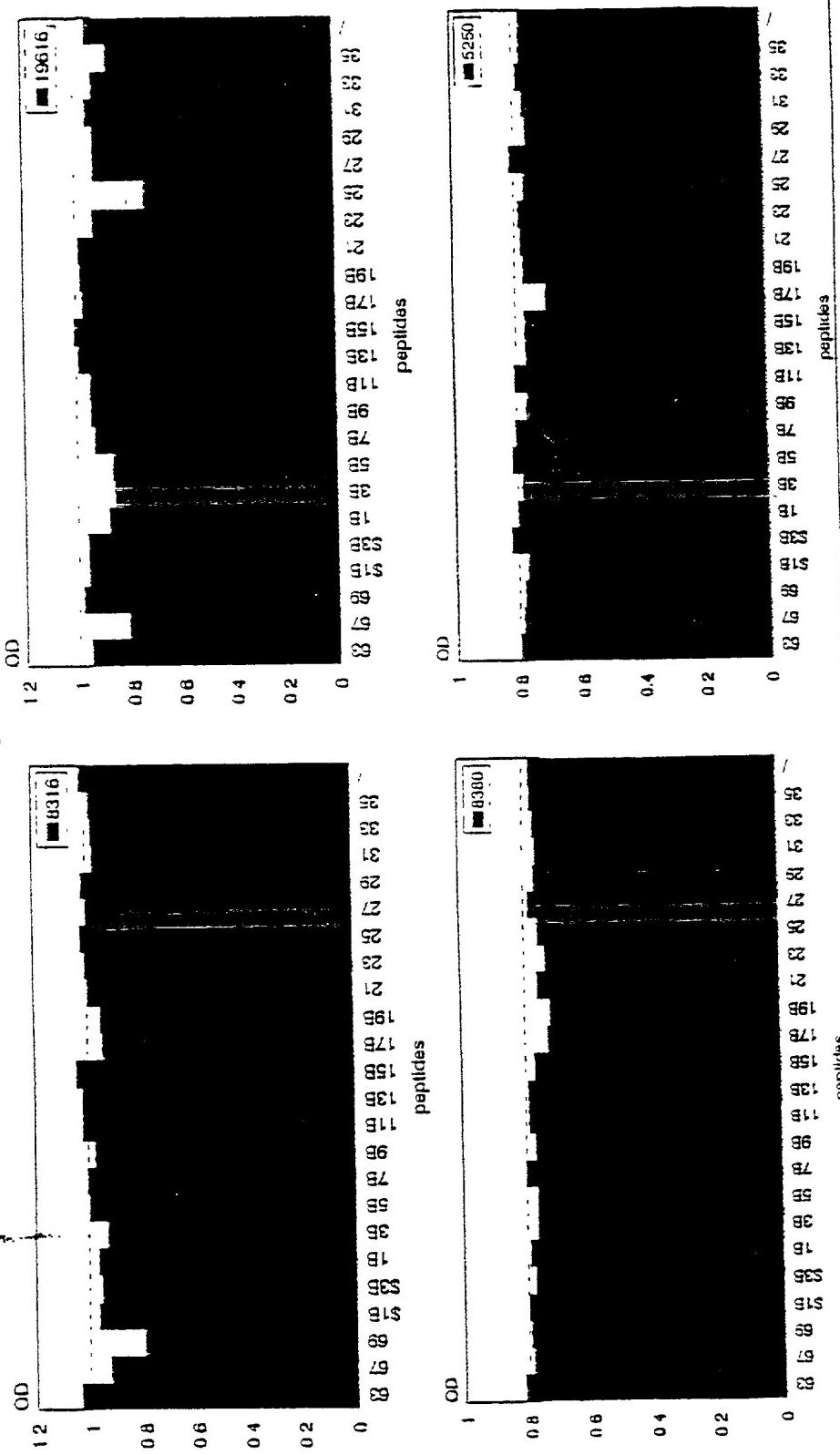


Fig. 20

## Fig. 21A

5' GGCATGCAAGCTTAATTAATT3' (SEQ ID NO 1)

3'ACGTCCGTACGTTCGAATTAATTAATCGA5' (SEQ ID NO 94)

5'CCGGGGAGGCCTGCACGTGATCGAGGGCAGACACCACCAACCACATCACTAATAGT  
TAATTAACTGCA 3' (SEQ ID NO 2)

3'CCTCCGGACGTGCACTAGCTCCCGTCTGTGGTAGTGGTGGTAGTGATTATCAATTAATTG  
5' (SEQ ID NO 95)

SEQ ID NO 3 (HCC19A)

ATGCCCGGTTGCTCTTCCTATCTTCCCTTTGGCTTACTGTCTGTCTGACCAATTCCA  
GCTTCCGCTTATGAGGTGGCAACGTGTCCGGATGTACCATGTCACGAACGACTGCT  
CCAACCTCAAGCATTGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGT  
GCCCTGCGTTGGGAGAACAACTCTCCCGCTGCTGGTAGCGCTCACCCCCACGGCTC  
GCAGCTAGGAACGCCAGCGTCCCACCACGACAATACGACGCCACGTCGATTTGCTCG  
TTGGGGCGGCTGCTCTGTTCCGCTATGTACGTGGGGATCTCTGCGGATCTGCTTC  
CTCGTCTCCAGCTGTTACCATCTCGCTGCCGGCATGAGACGGTGCAGGACTGCA  
ATTGCTCAATCTATCCCGGCCACATAACAGGTACCGTATGGCTTGGGATATGATGAT  
GAACTGGTCGCCCTACAACGCCCTGGTGGTATCGCAGCTGCTCCGATCCCACAAGCT  
GTCGTGGACATGGTGGGGGGCCATTGGGAGTCCCTGGCGGGCTGCCCTACTATT  
CCATGGTGGGAACTGGGCTAAGGTTTGATTGTGATGCTACTCTTGCTCTAATAG

SEQ ID NO 5 (HCC110A)

ATGTTGGGTAAGGTATCGATACCCCTACATGCGGCTTGGCCACCTCGTGGGTACA  
TTCCGCTCGTGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGAACGGCGTGAACATGCAACAGGGAAATTGCCCGTTGCTCTTCTCT  
ATCTTCTCTTGGCTTGCTGTCTGACCGTTCCAGCTCCGCTTATGAAGTGCG  
CAACGTGTCCGGATGTACCATGTCACGAACGACTGCTCAACTCAAGCATTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCTGCGTTGGGAGAAC  
AACTCTTCCCGCTGCTGGTAGCGCTACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCAACGACAATACGACGCCACGTCGATTTGCTGCTTGGGGCGGCTGCTTCTG

Fig. 21B

TTCCGCTATGTACGTGGGGACCTCTCGGAATCTGTCTCCTCGTCTCCCAGCTGTTCA  
CCATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCG  
CCACATAACGGGTACCGTATGGCTTGGGATATGATGATGAACCTGGTCGCCTACAACG  
GCCCTGGTGGTATCGCAGCTGCTCGGATCCCACAAGCTGTCGGACATGGTGGCGG  
GGGCCATTGGGAGTCTGGCGGGCTCGCCTACTATTCCATGGTGGGAACTGGC  
TAAGGTTTGATTGTGATGCTACTCTTGCTCCCTAATAG

SEQ ID NO 7 (HCCI11A)

ATGTTGGGTAAGTCATCGATACCCCTACGTGCGGCTTCGCCACCTCATGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGTGCCTGCCAGAGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAAGACGGCTGAACTATGCAACAGGGATTTCGCTGGTTGCTCTTCTCTA  
TCTTCCTCTGGCTTACTGTCTGTCTGACCATTCCAGCTTCCGCTTATGAGGTGCGC  
AACGTGTCGGGATGTACCATGTCACGAACGACTGCTCCAACCTCAAGCATTGTATG  
AGGCAGCGGACATGATCATGCAACACCCCCGGGTGCGTGCCTGCGTTGGGAGAAC  
ACTCTTCCGCTGCTGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGT  
CCCCACTACGACAATACGACGCCACGTCGATTTCGCTGGGGCGGCTGCTTCTGTT  
CCGCTATGTACGTGGGGATCTCTGCGGATCTGTCTCCTCGTCTCCAGCTGTTACC  
ATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGCC  
ACATAACAGGTACCGTATGGCTTGGGATATGATGATGAACCTGGTAATAG

SEQ ID NO 9 (HCCI12A)

ATGCCCGGTTGCTCTTCTCTATCTTCTCTGGCCCTGCTGTCTGTCTGACCATAACCA  
GCTTCCGCTTATGAAGTGCACCGTGTCCGGGGTGTACCATGTCACGAACGACTGCT  
CCAACCTCAAGCATACTGTATGAGGCAGCGGACATGATCATGCAACACCCCCGGGTGCGT  
GCCCTGCGTTGGGAGGGCAACTCCTCCCGTTGCTGGGTGGCGCTCACTCCACGCTC  
GCGGCCAGGAACGCCAGCGTCCCAACACGACAATACGACGCCACGTCGATTGCTC  
GTTGGGGCTGCTGCTTCTGTTCCGCTATGTACGTGGGGATCTCTGCGGATCTGTTT  
CCTTGTTCCAGCTGTTCACCTCTCACCTCGCCGGCATCAAACAGTACAGGACTGCA  
ACTGCTCAATCTATCCCGCCATGTATCAGGTACCCGATGGCTTGGGATATGATGAT  
GAACTGGTCCTAATAG

SEQ ID NO 11 (HCCI13A)

ATGTCGGTTGCTCTTCTCTATCTTCTCTGGCCCTGCTGTCTGTCTGACCATAACCA  
GCTTCCGCTTATGAAGTGCACCGTGTCCGGGGTGTACCATGTCACGAACGACTGCT  
CCAACCTCAAGCATACTGTATGAGGCAGCGGACATGATCATGCAACACCCCCGGGTGCGT

# Fig. 21C

GCCCTGGTTCGGGAGGGCAACTCTCCGTTGCTGGGTGGCGCTCACTCCCACGCTC  
GCGGCCAGGAACGCCAGCGTCCCCACAACGACAATACGACGCCACGTCGATTTGCTC  
GTTGGGGCTGCTGCTTCTGTTCCGCTATGTACGTGGGGATCTCTGCGGATCTGTTT  
CCTTGTTCCCAGCTGTTACCTTCTCACCTCGCCGGCATCAAACAGTACAGGACTGCA  
ACTGCTCAATCTATCCCGGCCATGTATCAGGTACCCGATGGCTGGATATGATGAT  
GAACTGGTAATAG

SEQ ID NO 13 (HCCI17A)

ATGCTGGTAAGGCCATCGATAACCTTACGTGCGGTTGCCGACCTCGTGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAAGACGGCGTGAACATGCAACAGGAATTGCTGGTTGCTCTTCTCTA  
TCTTCCTCTGGCTTACTGTCTGTCTAACCAATTCCAGCTTCCGCTTACGAGGTGCGC  
AACGTTGCGGATGTACCATGTCACGAACGACTGCTCCAACCTCAAGCATTGTGTATG  
AGGCAGCGGACATGATCATGCACACCCCCGGGTGGTGGCTGCCCTGCGTTGGGAGAAC  
ACTCTTCCCGCTGCTGGTAGCGCTCACCCCCACGCTCGCGCTAGGAACGCCAGCAT  
CCCCACTACAACAATACGACGCCACGTCGATTGCTCGTTGGGC3GCTGCTTCTGTT  
CCGCTATGTACGTGGGGATCTCTGGGATCTGTCTTCTCGTCTCCAGCTGTTCAACC  
ATCTCGCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGCC  
ACATAACGGGTACCGTATGGCTGGATATGATGATGAACTGGTACTAATAG

SEQ ID NO 15 (HCPr51)

ATGCCCGGTTGCTCTTCTCTATCTT

SEQ ID NO 16 (HCPr52)

ATGTTGGTAAGGTATCGATAACCT

SEQ ID NO 17 (HCPr53)

CTATTAGGACCAGTTATCATCATCATATCCCA

SEQ ID NO 18 (HCPr54)

CTATTACCACTGTTATCATCATATCCCA

SEQ ID NO 19 (HCPr107)

ATACGACGCCACGTCGATTCCAGCTGTTACCCATC

# Fig. 21D

SEQ ID NO 20 (HCP108)

GATGGTAAACAGCTGGGAATCGACGTGGCGTCGTAT

SEQ ID NO 21 (HCC137)

ATGTTGGTAAGGTATCGATAACCTTACATGCCGCTTCGCCGACCTCGTGGGTACA  
TTCCGCTCGTGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGAACGGCGTGAACTATGCAACAGGGATTGCCCGTTGCTCTTCTCT  
ATCTTCCCTCTGGCTTTGCTGTCTGTGACCGTTCCAGCTTCCGTTATGAAGTGCG  
CAACGTGTCCGGATGTACCATGTCACGAACGACTGCTCCAACCTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGTGCCTGCCCTGCCTCGGGAGAAC  
AACTCTCCGCTGCTGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTCGATTCCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTGGGATATGATGATGAACGGTGCCTACAAACGGCCCTGGTGGTAT  
CGCAGCTGCTCGGATCCACAAAGCTGTCGTGGACATGGTGGCGGGGCCATTGGGG  
AGTCCTGGCGGGTCTGCCTACTATTCCATGGTGGGAACGGCTAAGGTTTGATTG  
TGATGCTACTCTTGCTCCCTAATAG

SEQ ID NO 23 (HCC138)

ATGTTGGTAAGGTATCGATAACCTTACATGCCGCTTCGCCGACCTCGTGGGTACA  
TTCCGCTCGTGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGAACGGCGTGAACTATGCAACAGGGATTGCCCGTTGCTCTTCTCT  
ATCTTCCCTCTGGCTTTGCTGTCTGTGACCGTTCCAGCTTCCGTTATGAAGTGCG  
CAACGTGTCCGGATGTACCATGTCACGAACGACTGCTCCAACCTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGTGCCTGCCCTGCCTCGGGAGAAC  
AACTCTCCGCTGCTGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTCGATTCCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTGGGATATGATGATGAACGGTAA  
TAG

SEQ ID NO 25 (HCC139)

ATGTTGGTAAGGTATCGATAACCTTACATGCCGCTTCGCCGACCTCGTGGGTACA  
TTCCGCTCGTGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGAACGGCGTGAACTATGCAACAGGGATTGCCCGTTGCTCTTCTCT

Fig. 21E

ATCTTCCTCTGGCTTGCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGATGTACCATGTACGAACGACTGCTCCAACCTAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCTCGCGTCCGGAGAAC  
AACTCTTCCCCTGCTGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATAACGACGCCACGTCGATTCCCAGCTGTTACCATCTGCCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCGGCCACATAACGGGT  
CACCGTATGGCTGGGATATGATGATGAACGGTGCCTACAACGGCCCTGGTGGTAT  
CGCAGCTGCTCGGATCCTCTAATAG

SEQ ID NO 27 (HCCI40)

ATGTTGGTAAGGTATCGATACCCCTACATGCGGCTTCGCCGACCTCGTGGGTACA  
TTCCGCTCGTGGGCCCTAGGGGGCGTGCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACATGCAACAGGGAAATTGCCCCGGTTGCTCTTCT  
ATCTTCCTCTGGCTTGCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGATGTACCATGTACGAACGACTGCTCCAACCTAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCTCGCGTCCGGAGAAC  
AACTCTTCCCCTGCTGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATAACGACGCCACGTCGATTCCCAGCTGTTACCATCTGCCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCGGCCACATAACGGGT  
CACCGTATGGCTGGGATATGATGATGAACGGTGCCTACAACGGCCCTGGTGGTAT  
CGCAGCTGCTCGGATCGTATCGAGGGCAGACACCACCACTCACTAATAG

SEQ ID NO 29 (HCCI62)

ATGGGTAAGGTATCGATACCCCTACGTGCGGATTGCCGATCTCATGGGTACATCC  
CGCTCGTCGGCGCTCCCGTAGGAGGGCGTCGAAGAGGCCCTGGCGATGGCGTGGGGC  
CCTTGAAGACGGGATAAAATTGCAACAGGGAAATTGCCCCGGTTGCTCTTCTATTT  
TCCTTCTCGCTCTGTTCTCTGCTTAATTCCAGCAGCTAGTCTAGACTGGCGGAAT  
ACGTCTGGCCTCTATGTCCTTACCAACGACTGTTCCAATAGCAGTATTGTGTACGAGGC  
CGATGACGTTATTCTGCACACACCCGGCTGCATACCTTGTGTCAGGACGGCAATACA  
TCCACGTGCTGGACCCAGTGACACACCTACAGTGGCAGTCAAGTACGTGGAGCAACCA  
CCGCTTCGATAACGAGTCATGTGGACCTATTAGTGGCGCGGCCACGATGTGCTCTGC  
GCTCTACGTGGGTGACATGTGTGGGCTGCTTCTCGTGGGACAAGCCTTACGTTCA  
GACCTCGTCGCCATCAAACGGTCCAGACCTGTAACTGCTCGCTGTACCCAGGCCATCT  
TTCAGGACATCGAATGGCTGGGATATGATGATGAACGGTAATAG

## Fig. 21F

SEQ ID NO 31 (HCC163)

ATGGGTAAGGTATCGATAACCTAACGTGGGATTGCCGATCTCATGGGTATATCC  
CGCTCGTAGGGGGCCATTGGGGCGTCGCAAGGGCTCTGCACACGGTGTGAGGGT  
CCTTGAGGACGGGTAAACTATGCAACAGGGAAATTACCCGGTTGCTCTTCTCTATCT  
TTATTCTGCTCTCTCGTGTGACCGTCCGGCTCTGCAGTTCCCTACCGAAATG  
CCTCTGGGATTATCATGTTACCAATGATTGCCAAACTCTTCCATAGTCTATGAGGCA  
GATAACCTGATCCTACACGCACSTGGTTGCGTGCCTGTGTATGACAGGTAATGTGA  
GTAGATGCTGGGTCAAATTACCCCTACACTGTCAGCCCCGAGCCTCGGAGCAGTCAC  
GGCTCCTCTCGGAGAGCCGTTGACTACCTAGCAGGGAGGGGCTGCCCTTGCTCCCG  
TTATACGTAGGAGACCGTGTGGGCCTATTCTGGTAGGCCAAATGTTCACCTATA  
GGCCTGCCAGCACGCTACGGTGCAGAACTGCAACTGTTCCATTACAGTGGCCATGT  
.TACCGGCCACGGATGGATATGATGATGAACGGTAATAG

SEQ ID NO 33 (HCP109)

TGGGATATGATGATGAACGGTC

SEQ ID NO 34 (HCP172)

CTATTATGGTGGTAAKGCCARCARAGAGCAGGAG

SEQ ID NC 35 (HCC122A)

TGGGATATGATGATGAACGGTCGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCC  
GGATCCCACAAGCTGCGTGGACATGGTGGCGGGGCCATTGGGAGTCCTGGCGG  
GCCTCGCCTACTATTCCATGGTGGGAACGGCTAAGGTTGGTTGTGATGCTACTC  
TTTGCCTGGCGTGCACGGGATACCGCGTGTCAAGGAGGGCAGCAGCCTCCGATACCA  
GGGGCTTGTGCTCCCTTTAGCCCCGGGCGCTCAGAAAATCCAGCTCGTAAACAC  
CAACGGCAGTTGGCACATCAACAGGACTGCCCTGAACGCAACGACTCCCTCCAAAC  
AGGGTTCTTGCGCACTATTCTACAAACACAAATTCAACTCGTGTGGATGCCAGAG  
CGCTTGGCCAGCTGCGCTCATCGACAAGTTCGCTCAGGGTGGGTCCTCACTT  
ACACTGAGCCTAACAGCTGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACC  
GTGTGGTATTGTACCCCGTCTCAGGTGTGGTCCAGTGTATTGCTTACCCCCGAGCC  
CTGTTGTGGTGGGACGACCGATCGGTTGGTGTCCCCACGTATAACTGGGGGGCGAA  
CGACTCGGATGTGCTGATTCTCAACAAACACGCCGCCGCCAGGGCAACTGGTTCGGC  
TGTACATGGATGAATGGCACTGGTTACCAAGACGTGTGGGGCCCCCGTGCACACA  
TCGGGGGGCCGGCAACAAACACCTTGACCTGCCCACTGACTGTTTGGAAAGCACCC  
CGAGGCCACCTACGCCAGATGGGTTCTGGCCCTGGCTGACACCTAGGTGTATGGTT

Fig. 21G

CATTACCCATATAAGGCTCTGGCACTACCCCTGCACTGTCAACTTACCCATCTTCAGGT  
TAGGATGTACGTGGGGCGTGGAGCACAGGTTGAAGCCGCATGCAATTGGACTCG  
AGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTG  
TCTACAACAGAGTGGCAGATACTGCCCTGTTCTTACACCACCCGCCATCCA  
CCGGCCTGATCCACCTCCATCAGAACATCGTGGACGTGCAATACCTGTACGGTAGG  
GTCGGCGGTTGTCTCCCTGTATCAAATGGGAGTATGTCCTGTTGCTCTCCTCTCCT  
GGCAGACGCGCGCATCTGCGCCTGCTTATGGATGATGCTGCTGATAGCTAAGCTGAG  
GCCGCCCTAGAGAACCTGGTGGCCTCAATGCGGGGGCGTGGCCGGGGCGCATGGC  
ACTCTTCTTCTTGTGTTCTTCTGTGCTGCCCTGGTACATCAAGGGCAGGCTGGTCCC  
TGGTGCGGCATACGCCCTCATGGCGTGTGGCCGCTGCTCCTGCTTCTGCTGGCCTTAC  
CACCAACGAGCTTATGCCCTAGTAA

SEQ ID NO 37 (HCCI41)

GATCCCACAAGCTGTCGTGGACATGGTGGCGGGGCCATTGGGAGTCCTGGCGGG  
CCTCGCCTACTATTCCATGGTGGGAACCTGGCTAAGGTTTGGTTGTATGCTACTCT  
TTGCCGGCGTGCACGGCATAACCGCGTGTCAAGGAGGGCAGCAGCCTCCGATAACCA  
GGGGCCTTGTGTCCTCTTACAGCCCCGGGTCGGCTCAGAAAATCCAGCTCGAAACAC  
CAACGGCAGTGGCACATCAACAGGACTGCCCTGAAC TGCAACGACTCCCTCCAAAC  
AGGGTTCTTGGCAGTATTCTACAAACACAAATTCAACTCGTCTGGATGCCAGAG  
CGCTTGGCCAGCTGTCGCTCCATCGACAAGTTGCTCAGGGGTGGGCTCCACTT  
ACACTGAGCCTAACAGCTGGACCAGAGGCCACTGCTGGCACTACGCCCTCGACC  
GTGTGGTATTGTACCCCGGTCTCAGGTGTGGGTCCAGTGTATTGCTTACCCCGAGCC  
CTGTTGGTGGGACGACCGATCGGTTGGTGTCCCCACGTATAACTGGGGGGCGAA  
CGACTCGGATGTGCTGATTCTCAACAAACACGCCCGCCGCGAGGCAACTGGTTGGC  
TGTACATGGATGAATGGCACTGGGTTACCAAGACGTGTGGGGCCCCCGTGCAACAA  
TCGGGGGGCCGGCAACAAACACCTTGACCTGCCCACTGACTGTTTGGGAAGCACCC  
CGAGGCCACCTACGCCAGATGGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTT  
CATTACCCATATAAGGCTCTGGCACTACCCCTGCACTGTCAACTTACCCATCTTCAGGT  
TAGGATGTACGTGGGGCGTGGAGCACAGGTTGAAGCCGCATGCAATTGGACTCG  
AGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTG  
TCTACAACAGAGTGGCAGAGTGGCAGAGCTTAATTAAATTAG

SEQ ID NO 39 (HCCI42)

GATCCCACAAGCTGTCGTGGACATGGTGGCGGGGCCATTGGGAGTCCTGGCGGG  
CCTCGCCTACTATTCCATGGTGGGAACCTGGCTAAGGTTTGGTTGTATGCTACTCT

Fig. 21H

TTGCCGGCGTCGACGGGCATACCCCGTGTCAAGGAGGGGCAGCAGCCTCCGATAACCA  
GGGGCCTTGTGTCCCTCTTAGCCCCGGGTCGGCTCAGAAAATCCAGCTCGTAAACAC  
CAACGGCAGTTGGCACATCAACAGGACTGCCCTGAECTGCAACGACTCCCTCAAAC  
AGGGTTCTTGCAGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCAGAG  
CGCTTGGCCAGCTGTGCTCCATCGACAAGTTGCTCAGGGGTGGGTCCCCTCACTT  
ACACTGAGCCTAACAGCTGGACCAGAGGCCACTGCTGGCACTACGCCCTCGACC  
GTGTGGTATTGTACCCGCGTCTAGGTGTGGTCCAGTGTTGCTCACCCCGAGCC  
CTGTTGTGGTGGGACGACCGATCGGTTGGTGTCCCCACGTATAACTGGGGGGCGAA  
CGACTCGGATGTGCTGATTCTCAACAAACACGC3GCCCGCGAGGGCAACTGGTTCGGC  
TGTACATGGATGAATGGCACTGGTTCAACCAAGACGTGTGGGGCCCCCGTGCAACAA  
TCGGGGGGGCCGGCAACAAACACCTTGACCTGCCACTGACTGTTTCGGAAGCACCC  
CGAGGCCACCTACGCCAGATGCGGTTCTGGCCACTGCAACTTCACCATCTCAAGGT  
CATTACCCATATAGGCTCTGGCACTACCCCTGCACTGCAACTTCACCATCTCAAGGT  
TAGGATGTACGTGGGGGGCGTGGAGCACAGGTTGCAAGCCGATGCAATTGGACTCG  
AGGAGAGCGTTGTACTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTG  
TCTACAAACAGGTGATCGAGGGCAGACACCACTACCCACCATCACTAATAG

SEQ ID NO 41 (HCCI43)

ATGGTGGGAACTGGCTAAGGTTTGGTTGTGATGCTACTCTTGCCGGCGTCGACG  
GGCATACCCGGCGTGTCAAGGAGGGCAGCAGCCTCCGATACCAGGGGCTTGTGTCCT  
CTTAGCCCCGGGTCGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCAC  
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GCACTGGTTCAACCAAGACGTGTGGGGGCCCCCGTGCACACATCGGGGGGCCGGCA  
ACAACACCTTGACCTGCCCACTGACTGTTTGGAAAGCACCCGAGGCCACCTACGC  
CAGATGCGGTTCTGGCCCTGGCTGACACCTAGGTGTATGGTCAAGGTTAGGATGTACGTGG  
CTCTGGCACTACCCCTGCACTGTCACATTCAAGGTTAGGATGTACGTGG  
GGCGTGGAGCACAGGTTGCAAGCCGATGCAATTGGACTCGAGGAGAGCGTTGTGA  
CTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTGTACAAACAGAGTGG  
CAGAGCTTAATTAAATTAG

Fig. 21I

SEQ ID NO 43 (HCC144)

ATGGTGGGAACTGGCTAAGGTTTGTTGTGATGCTACTCTTGCCGGCGTCGACG  
GGCATACCCGGTGTCAAGGAGGGCAGCAGCCTCCGATACCAGGGCCTGTGTCCT  
CTTAGCCCCGGTGGCTCAGAAAATCCAGCTCGTAAACACCCAACGGCAGTTGGCAC  
ATCAACAGGAACGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTGCCGAC  
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GACCGATCGGTTGGTGTCCCCACGTATAACTGGGGGCGAACGACTCGGATGTGCTG  
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GCACTGGTTACCAAGACGTGTGGGGCCCCCGTCAACATGGGGGGCCGGCA  
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CAGATGCGGTTCTGGCCCTGGCTGACACCTAGGTGTATGGTTCAATTACCCATATAGG  
CTCTGGCACTACCCCTGCACTGTCAACTTACCATCTCAAGGTTAGGATGTACGTGG  
GGCGTGGAGCACAGGTCGAAGCCGATGCAATTGAACTCGAGGAGAGCGTTGTGA  
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SEQ ID NO 45 (HCC164)

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Fig. 21J

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GAACATCGTGGACGTGCAATACTGTACGGTGTAGGGTCGGCGGTTGTCTCCCTTGTC  
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CTGCTTATGGATGATGCTGCTGATAGCTAACGCTGAGGCCGCCTAGAGAACCTGGTG  
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CTGTGCTGCCTGGTACATCAAGGGCAGGCTGGTCCCTGGTGC GGCA TACGCCCTCTAT  
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SEQ ID NO 47 (HCC165)

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CCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCTCAACAAACACGCC  
CCGCCCGAGGCAACTGGTCGGCTGTACATGGATGAATGGCACTGGGTTACCAAGA  
CGTGTGGGGGCCCCCGTCAACATCGGGGGGCCGGCAACAAACACCTTGACCTGCC

# Fig. 21K

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CTGTCAACTCACCATCTCAAGGTTAGGAATGTACGTGGGGGGGTGGAGGCACAGGTT  
CGAAGCCGATGCAATTGGACTCGAGGAGAGCGTTGTACCTGGAGGACAGGGATAG  
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TGATGCTGCTGATAGCTAAGCTGAGGCCGCTTAGAGAACCTGGTGGTCCCTCAATGCG  
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SEC ID NC 49 (HCC166)

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CTCGTGGGAGGCAGAACCTATCCCCAAGGCTGCCGACCCGAGGGTAGGGCCTGGG  
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GCTCTGTACCCCGCGCTCTGGCCTAGTTGGGGCCCTACAGACCCCCGGCGTAGG  
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TGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGGCTGCCCTCGTGG  
GAACAACTCTCCCGCTGGTAGGGTACGGCTCACCCCCACGCTCGCAGCTAGGAACGCC  
AGCGTCCCCACCAACGACAATACGACGCCACGTCGATTGCTCGTGGGGCGCTGCTT  
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CCGGCCACATAACGGGTACCGTATGGCTGGATATGATGAACTGGTGCCTAC  
AACGGCCCTGGTGGTATCGCAGCTGCTCCGGATCCCACAAGCTGTCGTGGACATGGT  
GCGGGGGCCATTGGGGAGTCCTGGCGGCCCTGCCTACTATTCCATGGTGGGGAACT  
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GTCAGGAGGGCAGCAGCCTCCGATACCAGGGCCTTGTGTCCCTCTTAGCCCCGGG

Fig. 21L

TCGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCACATCAACAGGACT  
GCCCTGAAC TGCAACGACTCCCTCAAACAGGGTTCTTGCCGACTATTCTACAAAC  
ACAAATTCACACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTCGCTCCATCGACAA  
GTTCGCTCAGGGGTGGGGTCCCTCACTTACACTGAGCCTAACAGCTCGGACCAGAGG  
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CCTGCCCACTGACTGTTTCGGAAGCACCCGAGGCCACCTACGCCAGATCGGTT  
TGGGCCCTGGCTGACACCTAGGTGTATGGTCATTACCCATATAGGCTCTGGCACTAC  
CCCTGCACTGTCAACTTACCATCTCAAGGTTAGGATGTACGTGGGGCGTGGAGC  
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GGGATAGATCAGAGCTAGCCCGCTGCTGCTGTACAAACAGAGTGGCAGATACTGCC  
CTGTTCTTCAACCACCCCTGCCGCCCTATCCACCGGCCTGATCCACCTCCATCAGAAC  
ATCGTGGACCTGCAATA CCTGTACGGTGTAGGGTCGGCGTTGTCTCCCTTGTCA  
AATGGGAGTATGTCTGTTGCTCTTCCCTCCTGGCAGACGCCGCATCTGCCCTGC  
TTATGGATGATGCTGCTGATAGCTCAAGCTGAGGCCGCTTAGAGAACCTGGTGGTCC  
TCAATGCCGCCGCGTGGCGGGCGCATGGCACTCTTCCCTGTGTTCTCTGT  
GCTGCCTGGTACATCAAGGGCAGGCTGGTCCCTGGTGGCGCATACGCCCTCTATGGCG  
TGTGGCCCGCTGCTCTGCTTCTGCTGGCCTTACCAACCACGAGCTTATGCCTAGTAA

Fig. 22

OD measured at 450 nm  
construct

Fraction	volume	dilution	39 Type 1b	40 Type 1b	62 Type 3a	63 Type 5a
START	23 ml	1/20	2.517	1.954	1.426	1.142
FLOW THROUGH	23 ml	1/20	0.087	0.085	0.176	0.120
1	0.4 ml	1/200	0.102	0.051	0.048	0.050
2			0.396	0.550	0.090	0.067
3			2.627	2.603	2.481	1.372
4			3	2.967	3	2.694
5			3	2.810	2.640	1.154
6			2.694	2.499	1.359	1.561
7			2.408	2.481	0.347	1.390
8			2.176	1.970	1.624	0.865
9			1.461	1.422	0.887	0.504
10			1.236	0.926	0.543	0.519
11			0.981	0.781	0.294	0.294
12			0.812	0.650	0.149	0.199
13			0.373	0.432	0.139	0.209
14			0.653	0.371	0.145	0.184
15			0.441	0.348	0.151	0.151
16			0.321	0.374	0.098	0.106
17			0.525	0.186	0.099	0.108
18			0.351	0.171	0.083	0.090
19			0.192	0.164	0.084	0.087

Fig. 23

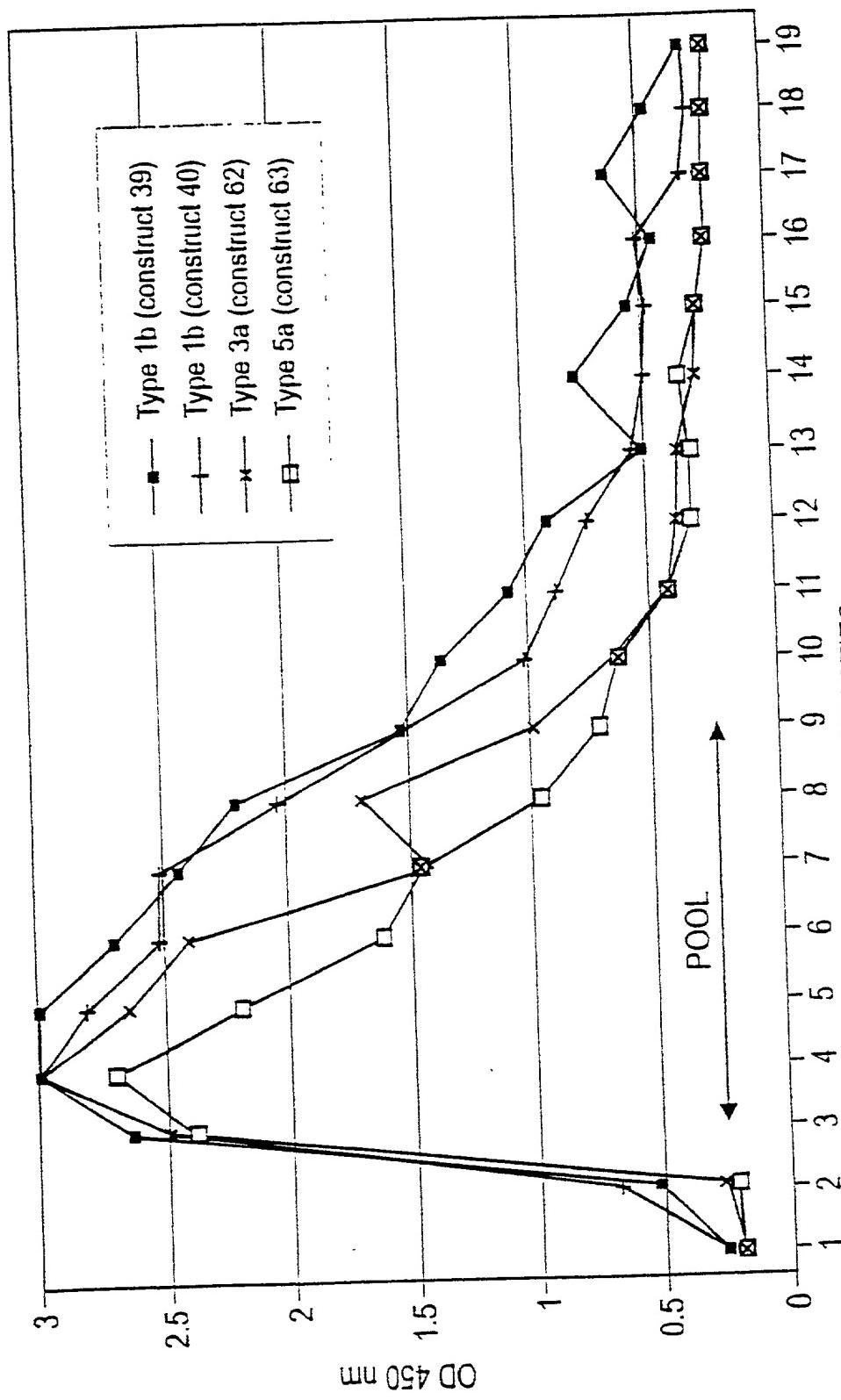


Figure 24

Fraction	volume	dilution	OD measured at 450 nm			
			construct			
			39 Type 1b	40 Type 1b	62 Type 3a	63 Type 5a
20	250 $\mu$ l	1/200	0.072	0.130	0.096	0.051
21			0.109	0.293	0.084	0.052
22			0.279	0.249	0.172	0.052
23			0.093	0.151	0.297	0.054
24			0.080	0.266	0.438	0.056
25			0.251	0.100	0.457	0.048
26			3	1.649	0.722	0.066
27			3	3	2.528	0.889
28			3	3	3	2.345
29			3	3	2.849	2.580
30			2.227	1.921	1.424	1.333
31			0.263	0.415	0.356	0.162
32			0.071	0.172	0.154	0.064
33			0.103	0.054	0.096	0.057
34			0.045	0.045	0.044	0.051
35			0.043	0.047	0.045	0.046
36			0.045	0.045	0.049	0.040
37			0.045	0.047	0.046	0.048
38			0.046	0.048	0.047	0.057
39			0.045	0.048	0.050	0.057
40			0.046	0.049	0.048	0.049

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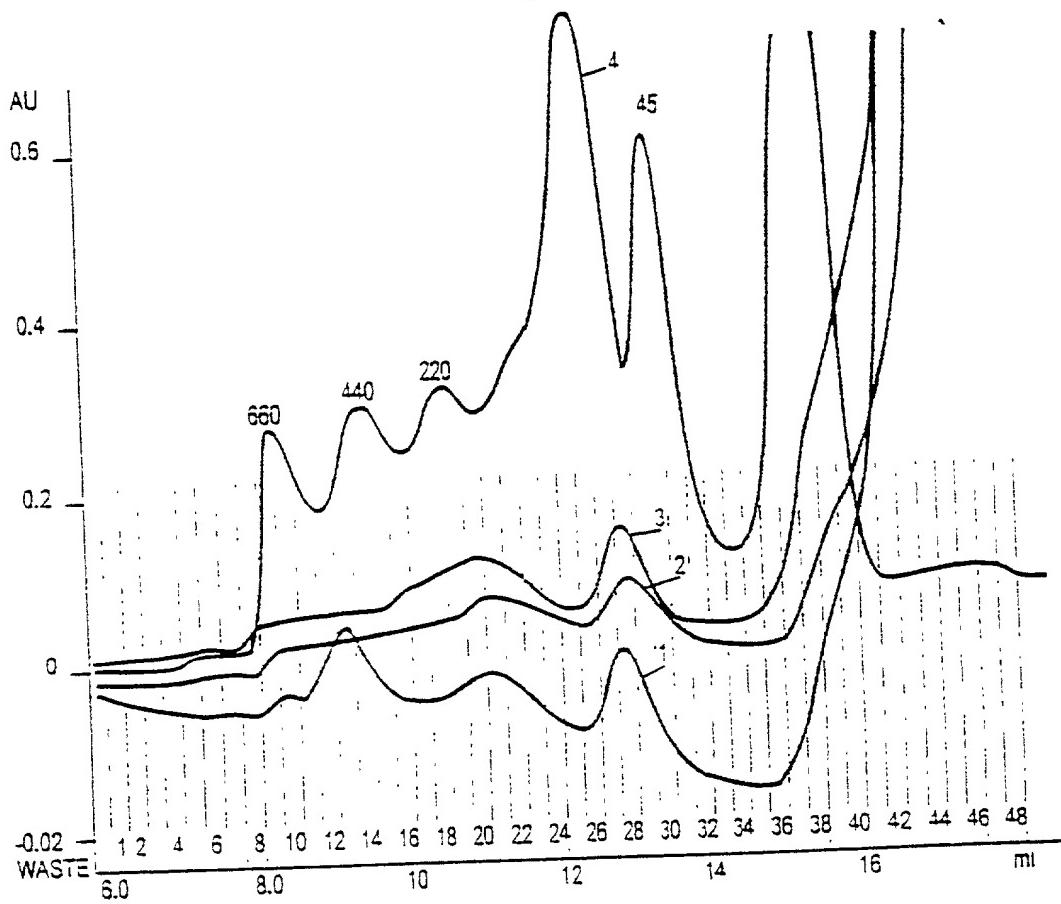


Fig. 25

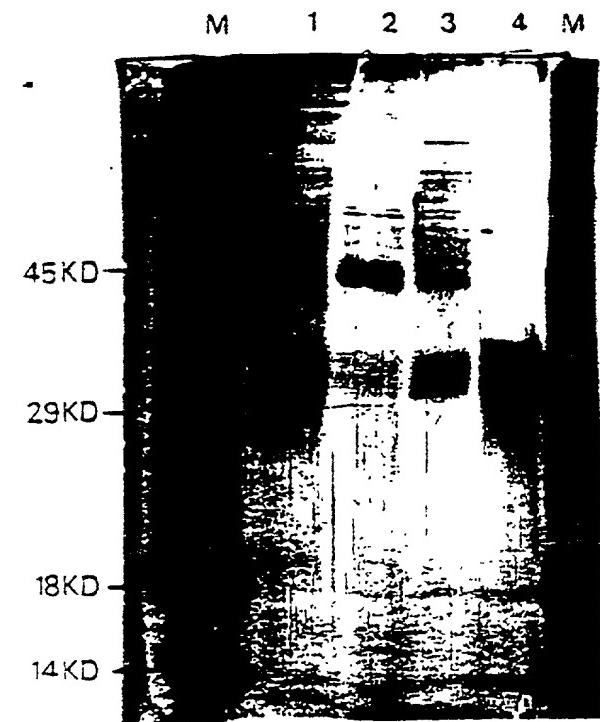


Fig. 26

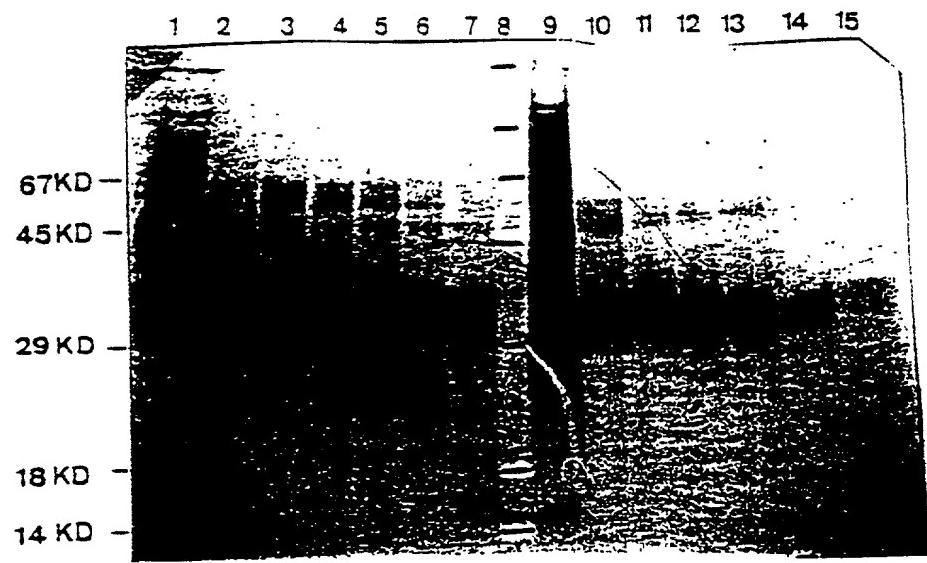


Fig. 27

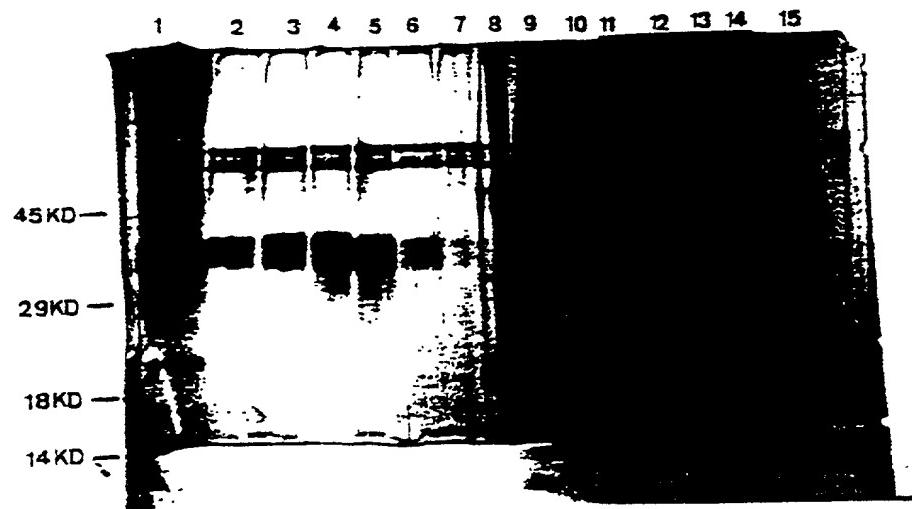


Fig.28

M 1 2 3 4 5 6

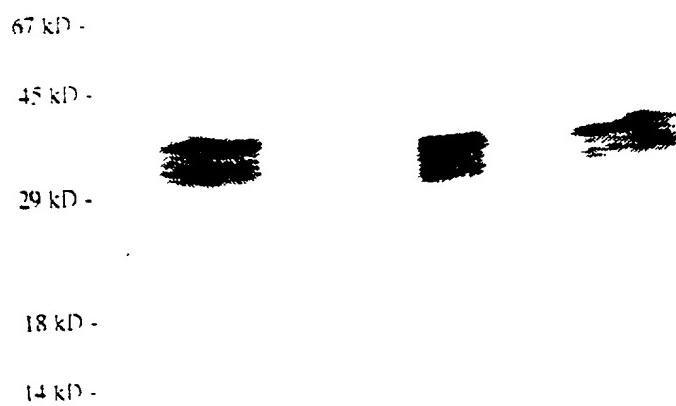


Fig.29

- Lane 1: Crude Lysate
- Lane 2: Flow through Lentil Chromatography
- Lane 3: Wash with EMPIGEN Lentil Chromatography
- Lane 4: Eluate Lentil Chromatography
- Lane 5: Flow through during concentration lentil eluate
- Lane 6: Pool of Elafter Size Exclusion Chromatography

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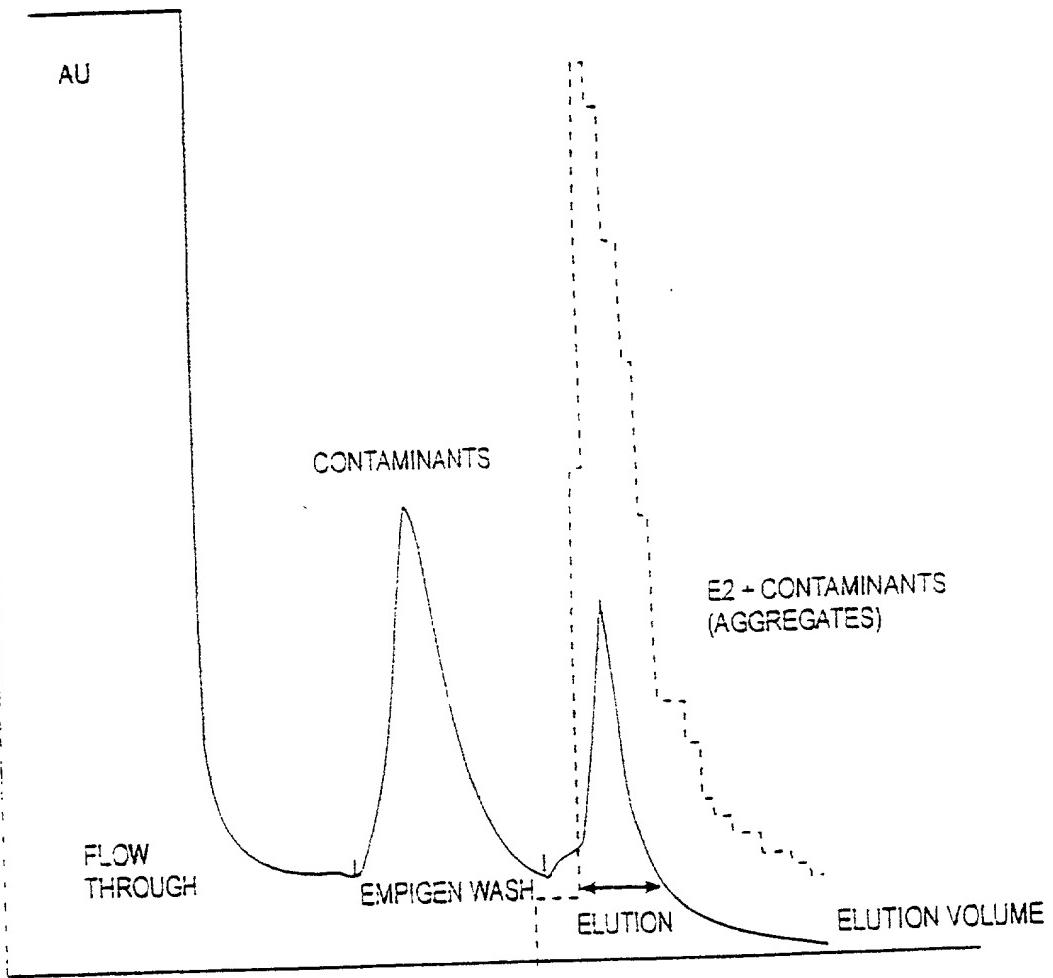
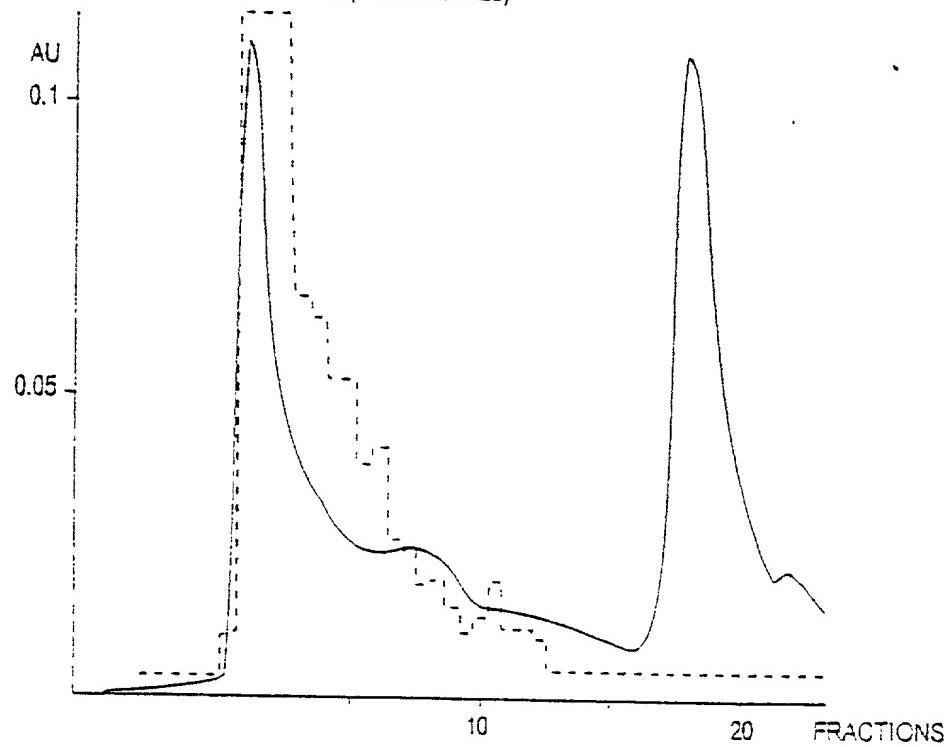


Fig. 30

NON - REDUCED

Fig. 31A

E2 + CONTAMINANTS (AGGREGATES)



REDUCED

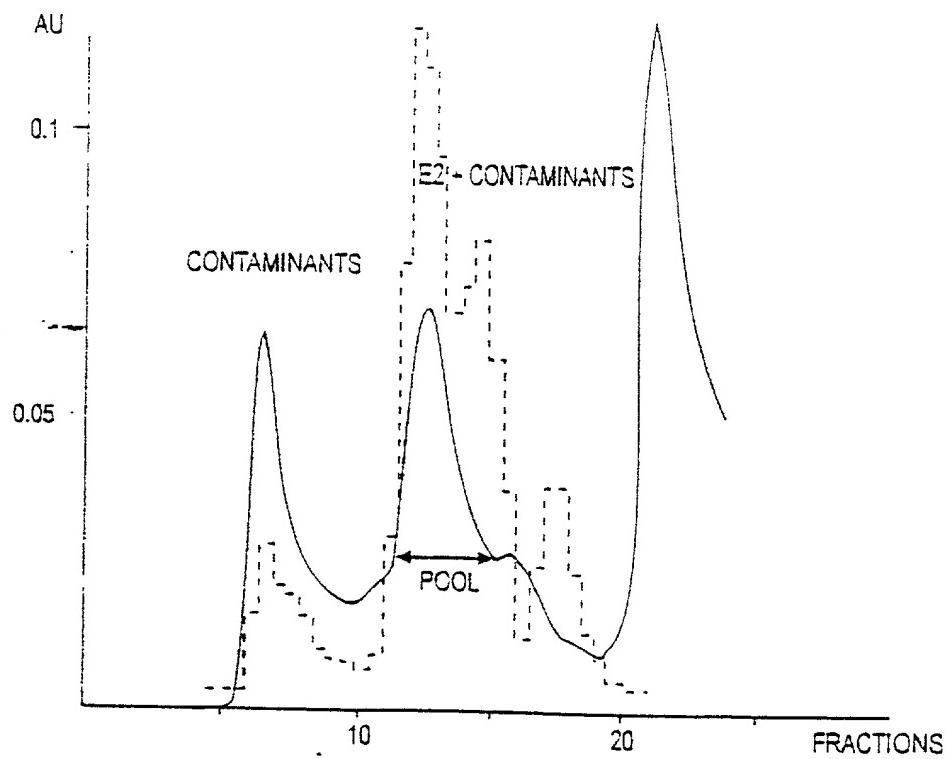


Fig. 31B

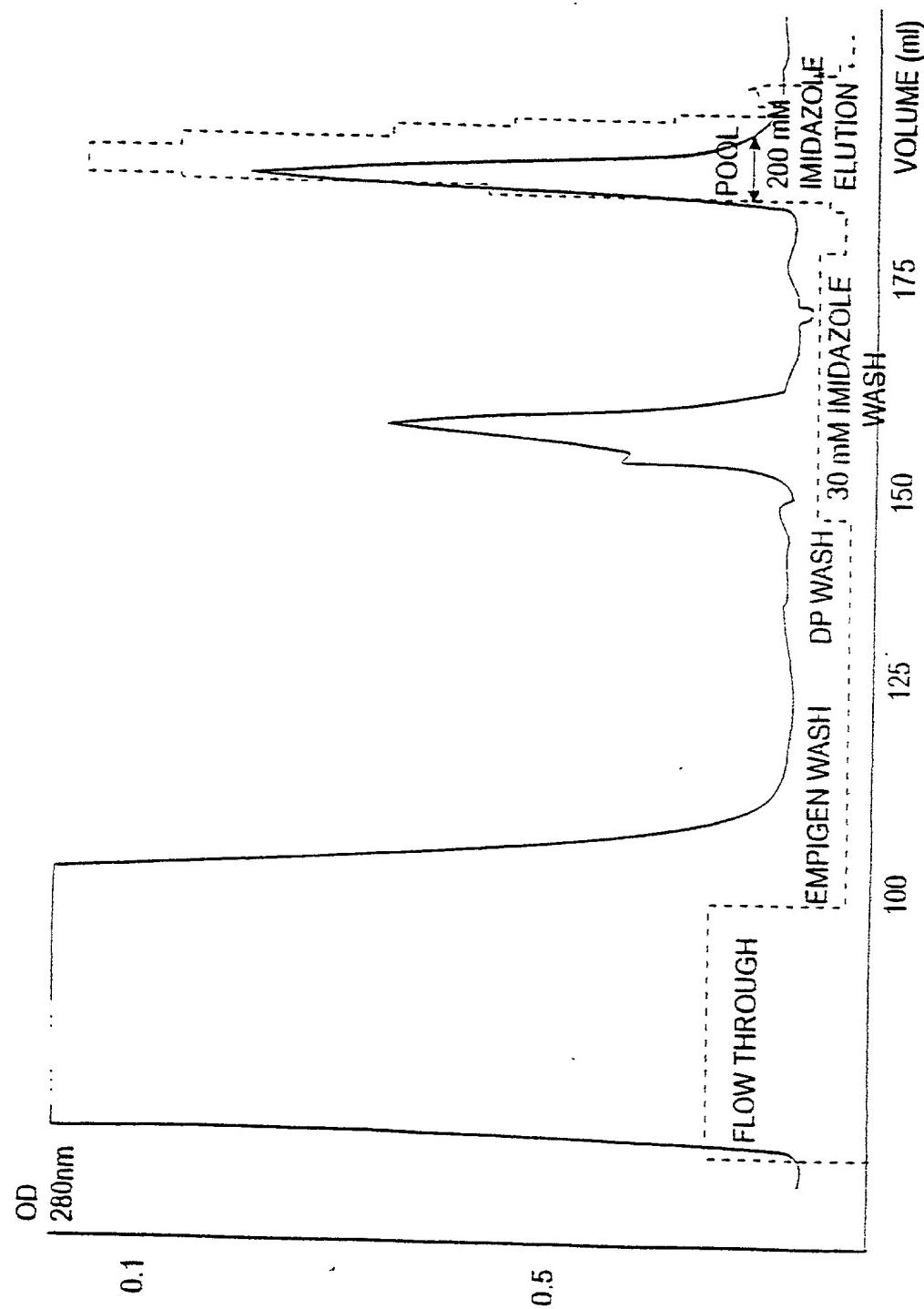
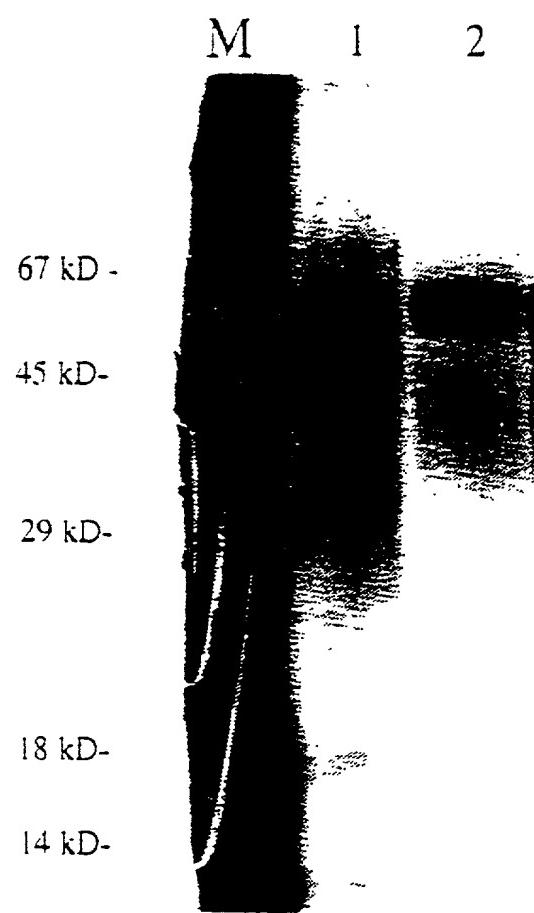


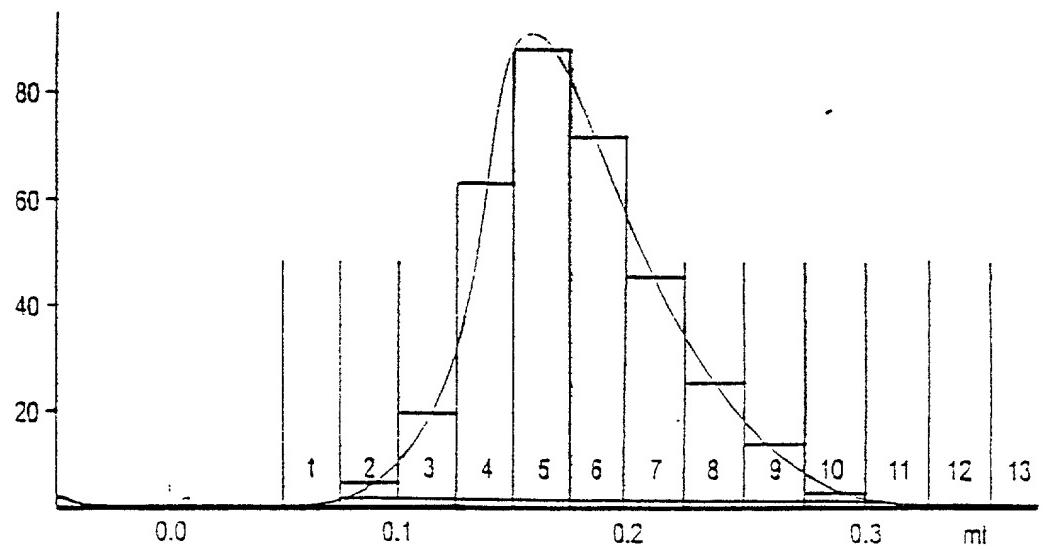
Fig. 32

## SILVER STAIN OF PURIFIED E2



1. 30 mM IMIDAZOLE WASH Ni-IMAC
2. 0.5 ug E2

Fig.33



No.	Ret. (mi)	Peak start (mi)	Peak end (mi)	Dur (mi)	Area (mi*mAU)	Height (mAU)
1	-0.45	-0.46	-0.43	0.04	0.0976	4.579
2	1.55	0.75	3.26	2.51	796.4167	889.377
3	3.27	3.26	3.31	0.05	0.0067	0.224
4	3.33	3.32	3.33	0.02	0.0002	0.018

Total number of detected peaks = 4  
 Total Area above baseline = 0.796522 mi\*mAU  
 Total area in evaluated peaks = 0.796521 mi\*mAU  
 Ratio peak area / total area = 0.999999  
 Total peak duration = 2.613583 mi

Fig. 34

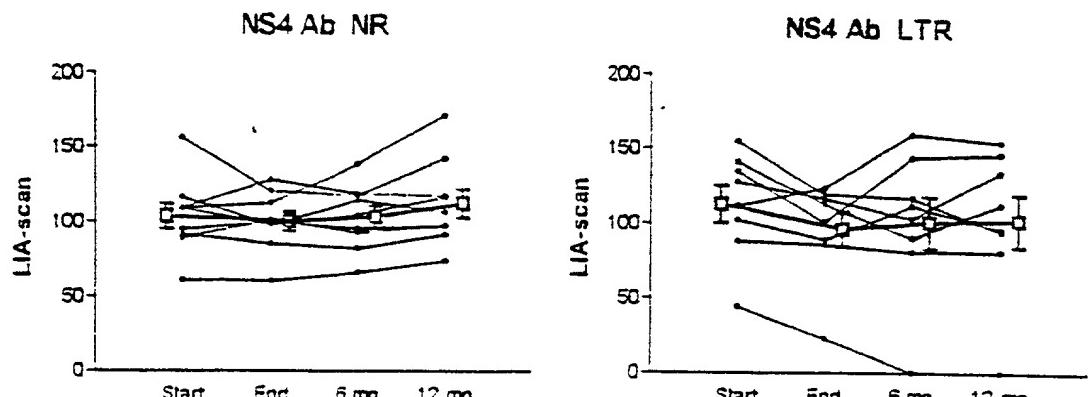


Fig. 35A-1

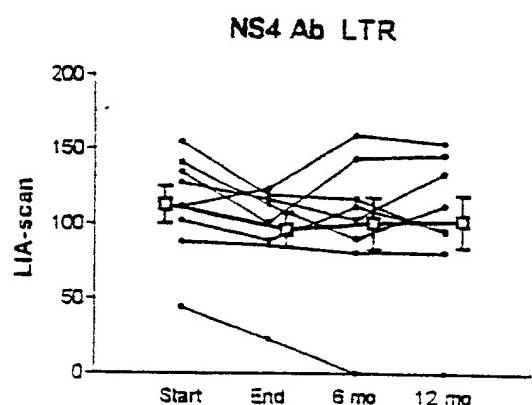


Fig. 35A-2

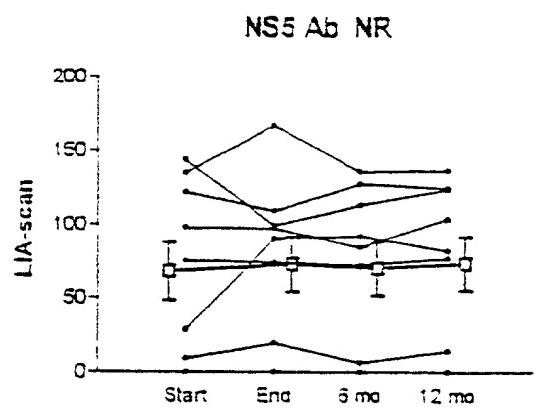


Fig. 35A-3

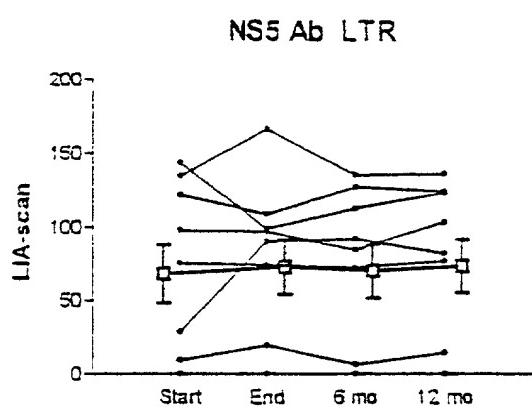


Fig. 35A-4

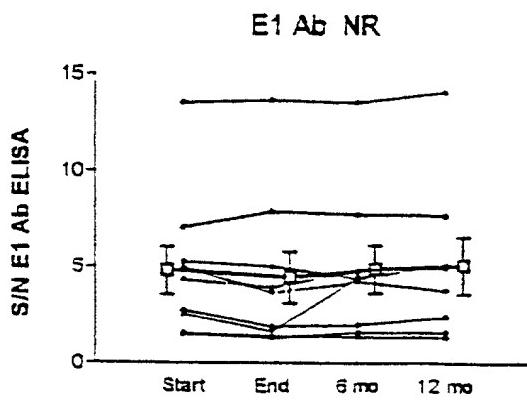


Fig. 35A-5

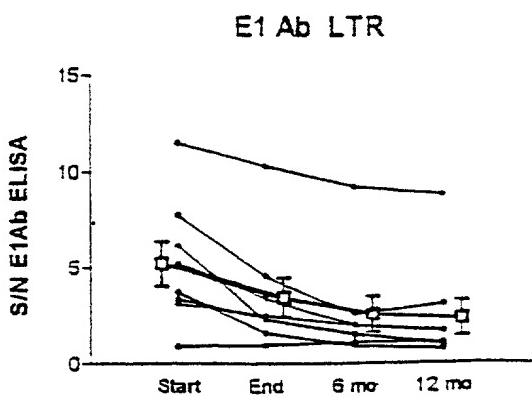


Fig. 35A-6

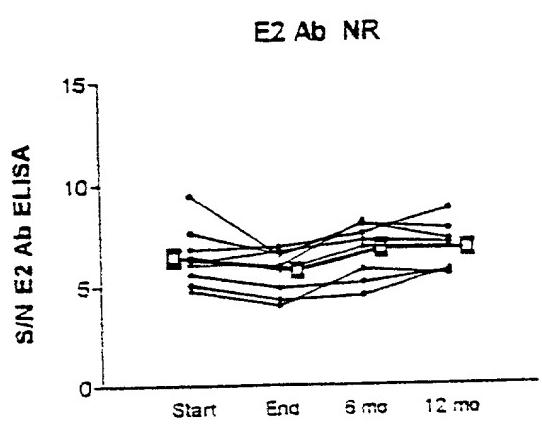


Fig. 35A-7

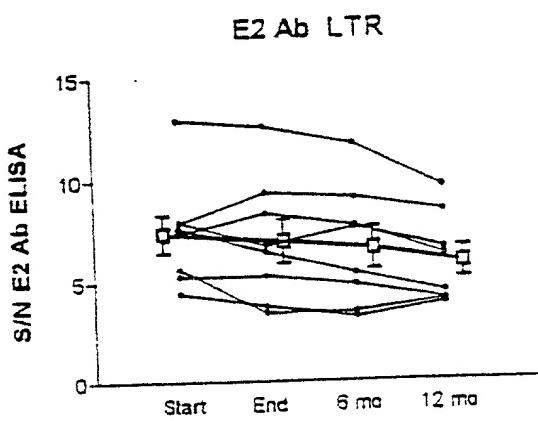


Fig. 35A-8

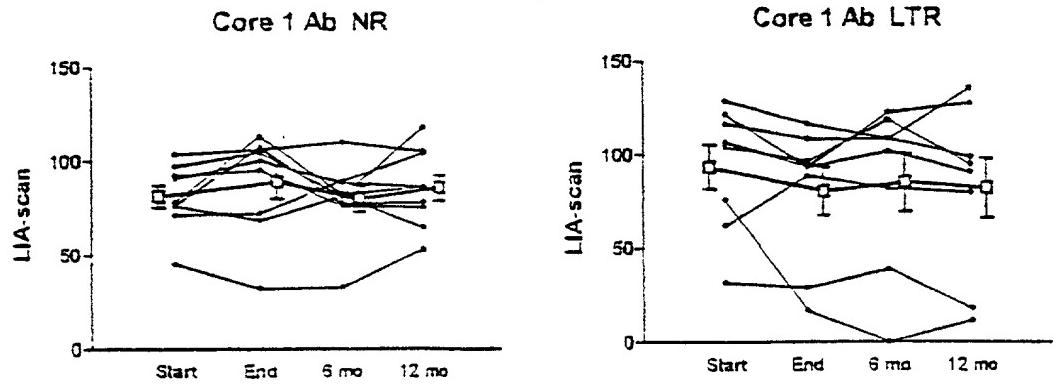


Fig. 35B-1

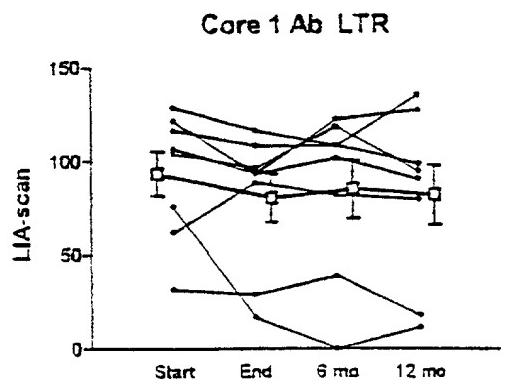


Fig. 35B-2

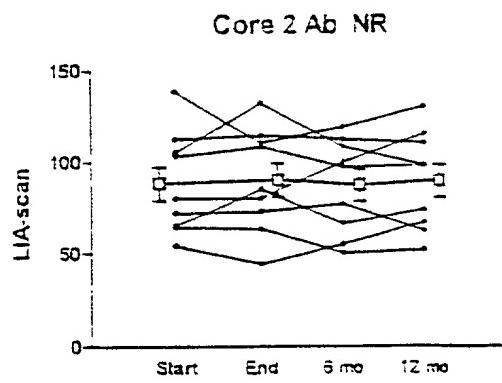


Fig. 35B-3

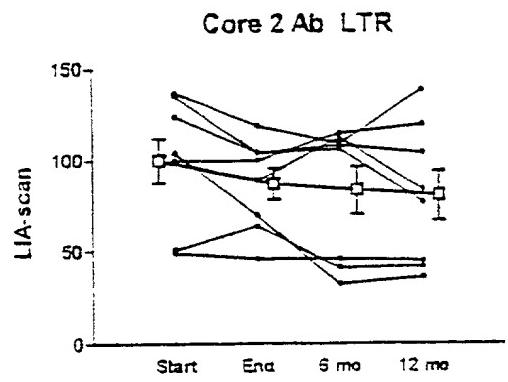


Fig. 35B-4

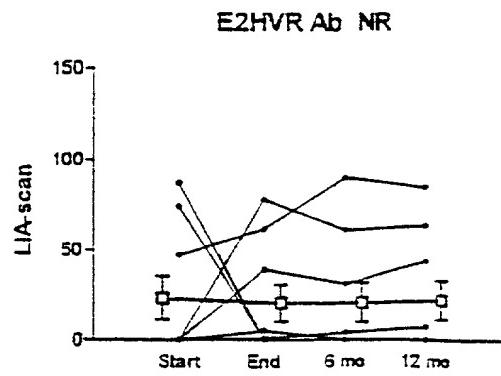


Fig. 35B-5

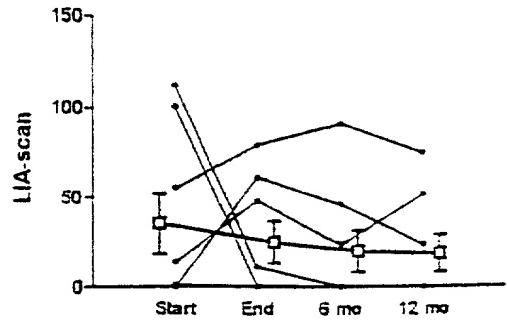


Fig. 35B-6

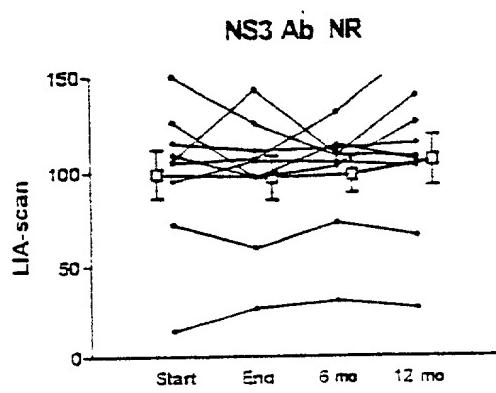


Fig. 35B-7

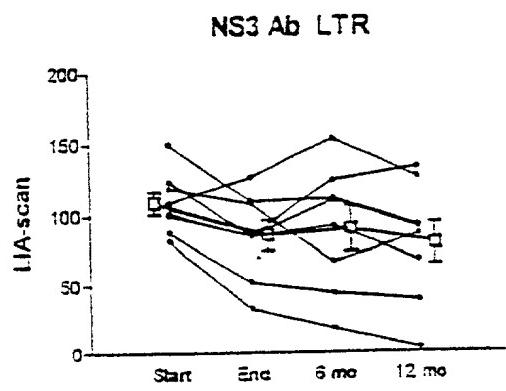


Fig. 35B-8

Fig. 36A

E1 Ab

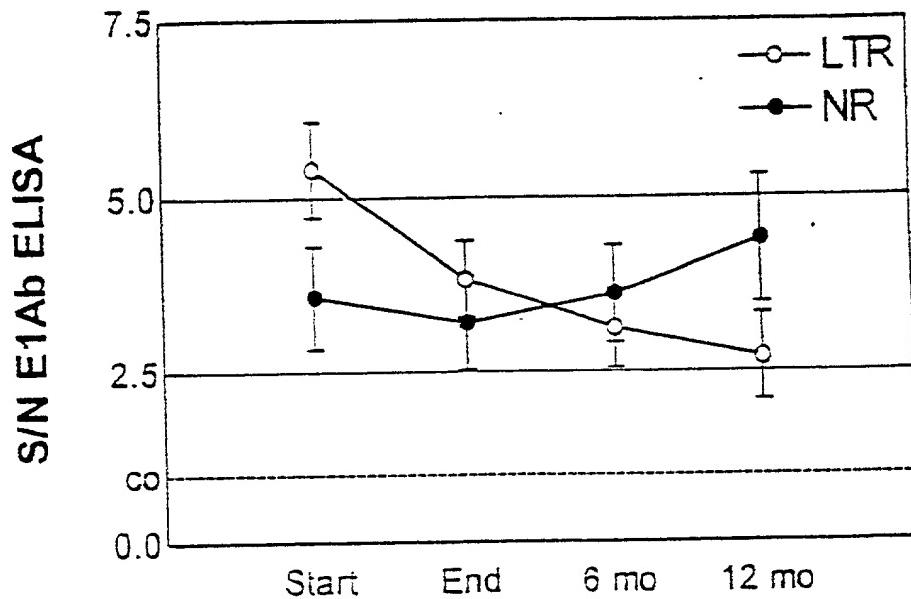
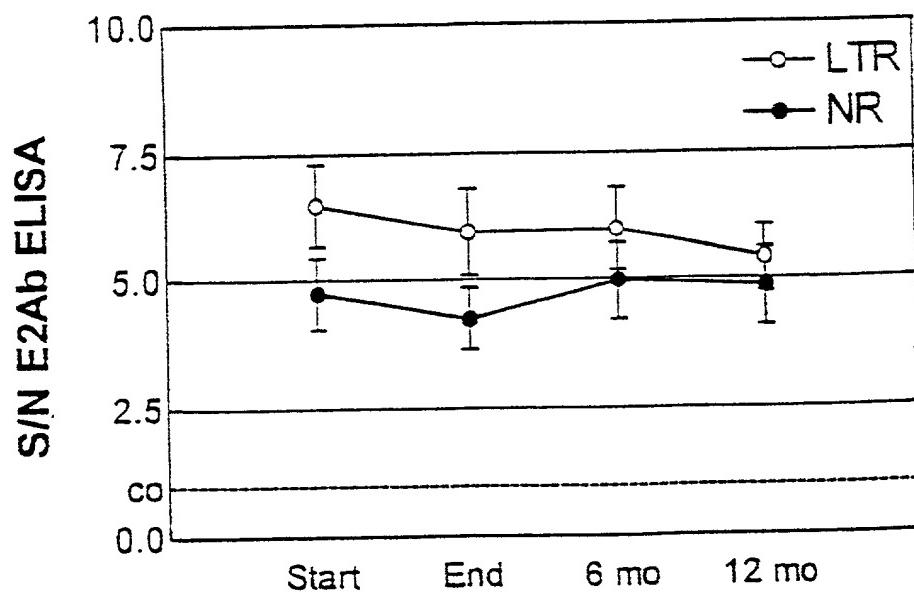
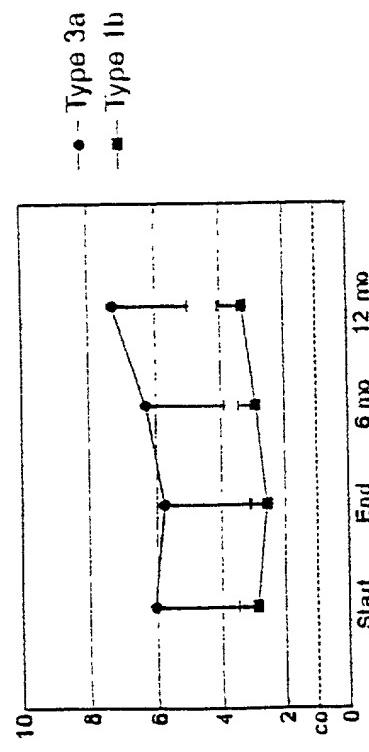


Fig. 36B

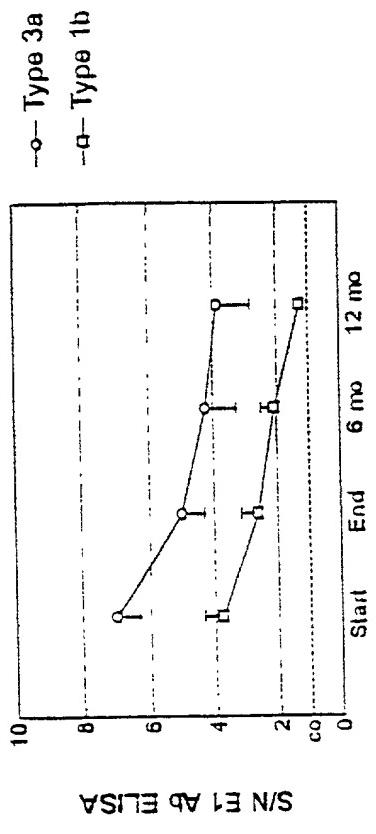
E2 Ab



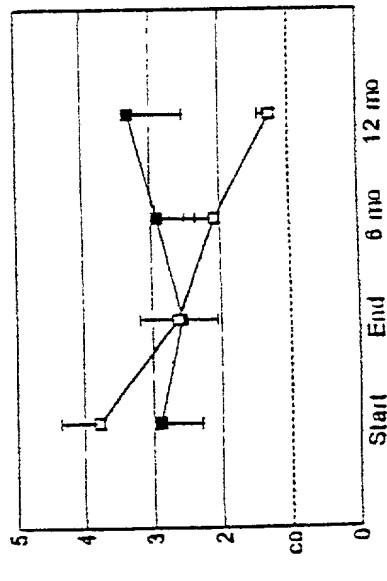
**Fig. 37A**  
Non Responders



**Fig. 37B**  
Long Term Responders



**Fig. 37C**  
Type 1b



**Fig. 37D**  
Type 3a

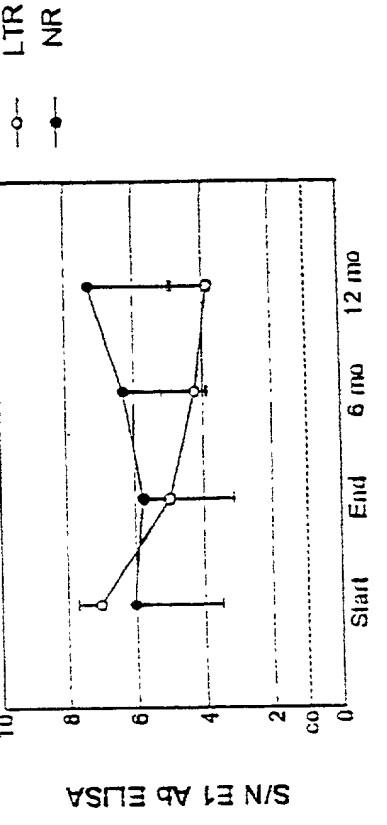
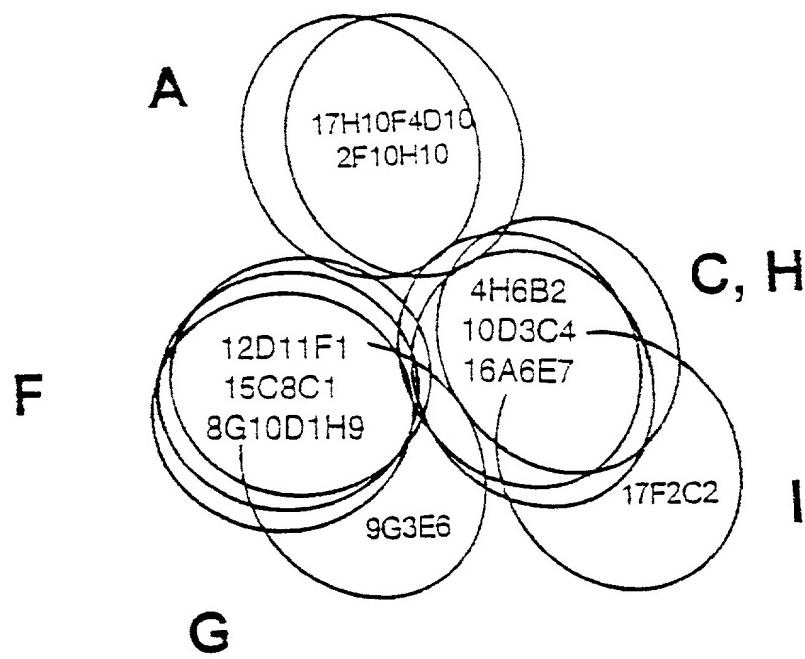


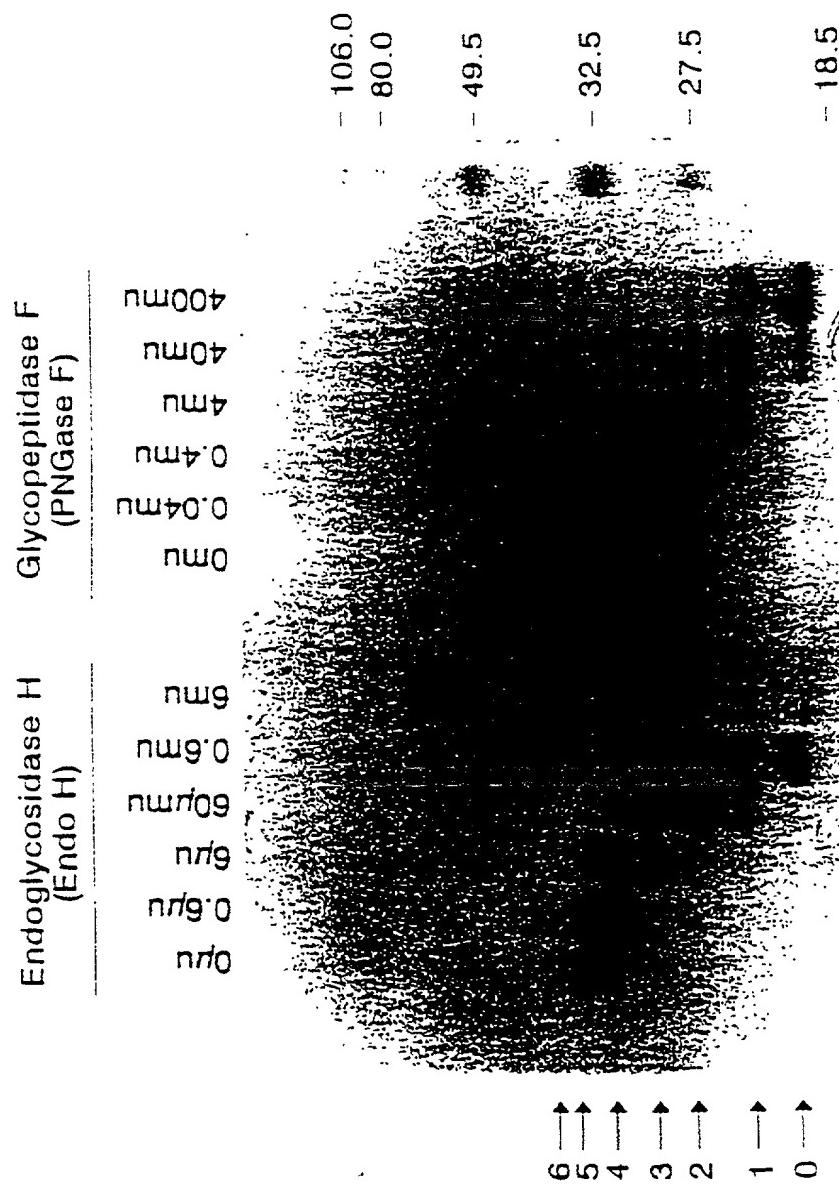
Fig. 38

Relative Map Positions of  
anti-E2 monoclonal antibodies



## PARTIAL DEGLYCOSYLATION OF HCV E1 ENVELOPE PROTEIN

Fig. 39



PARTIAL TREATMENT OF HCV E2\E2s ENVELOPE PROTEINS  
BY PNGase F

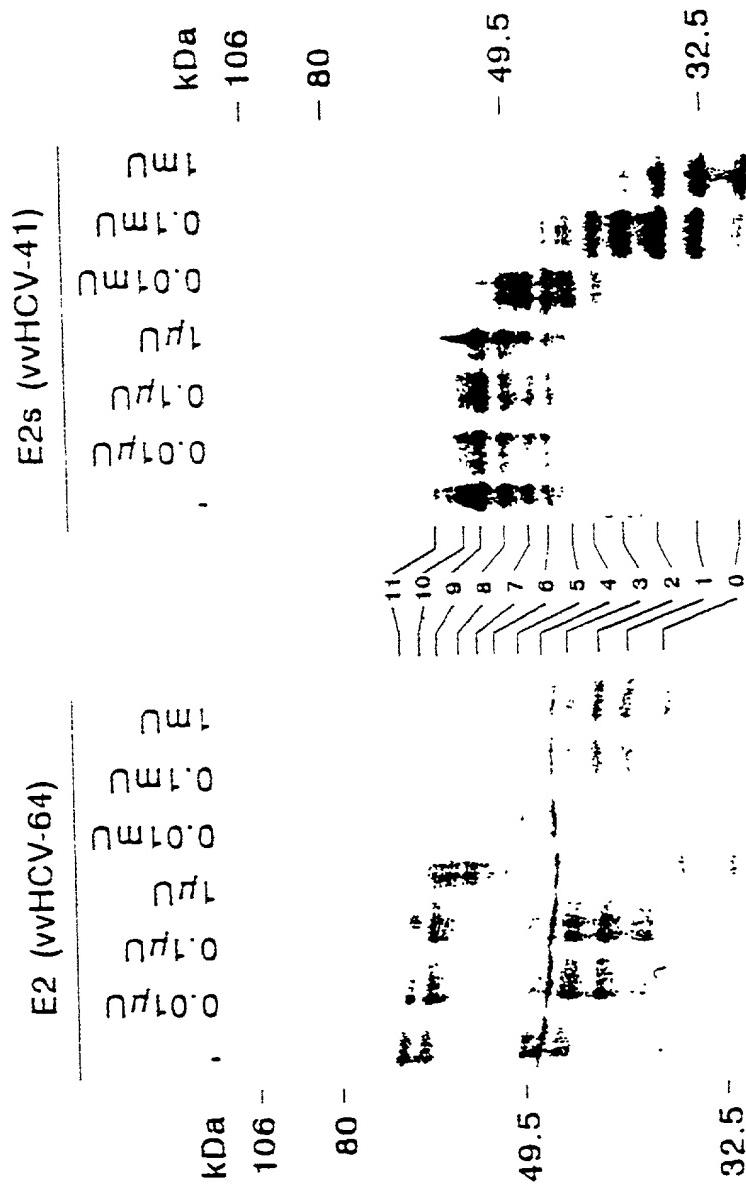
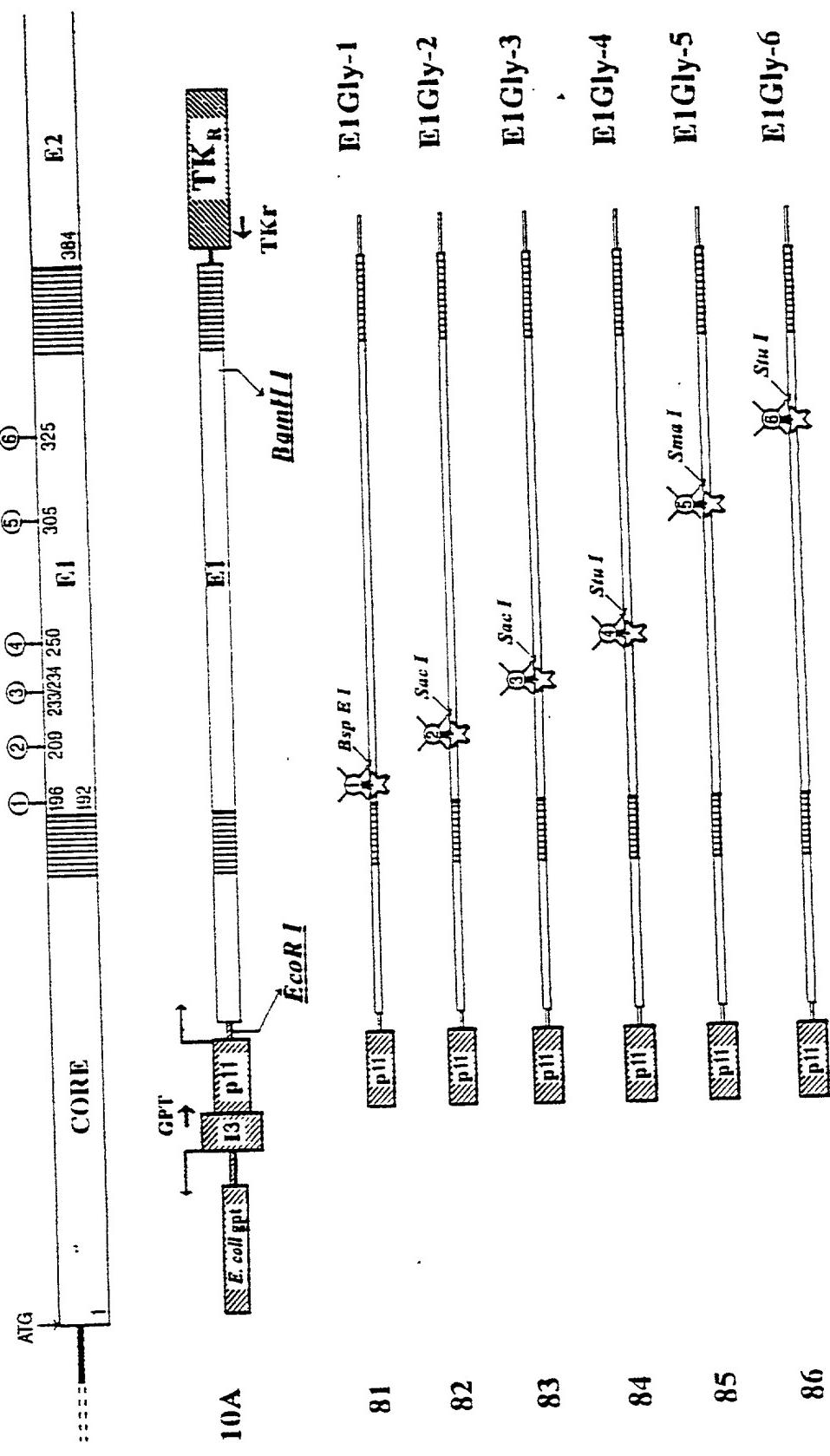
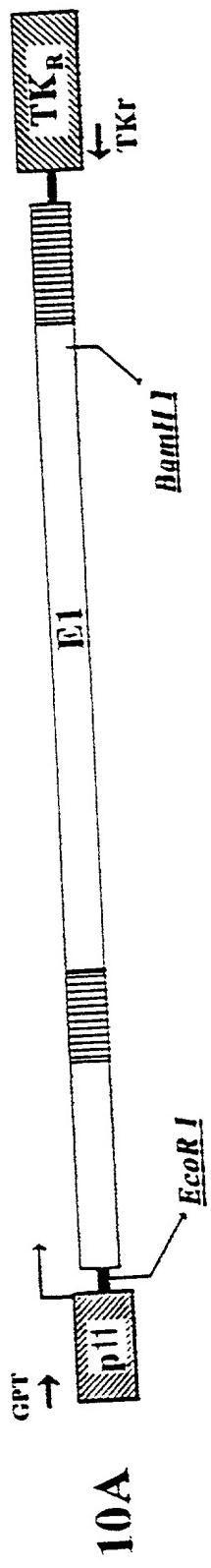


Fig. 40

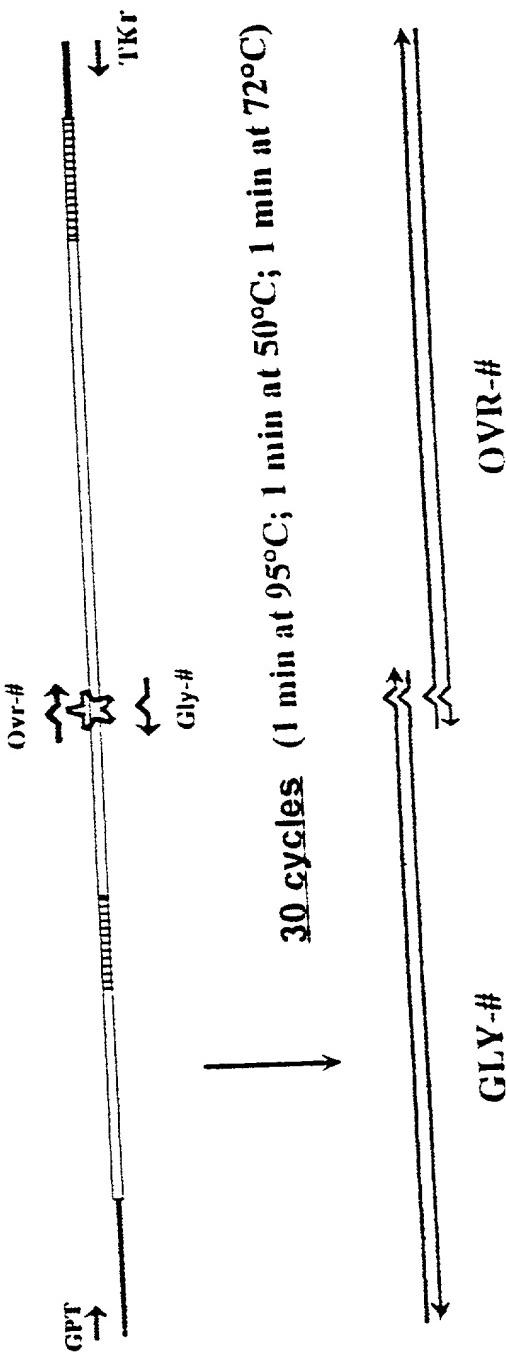
**Fig. 41 *In Vitro* Mutagenesis of HCV E1 glycoprotein**



**Fig. 42A** *In Vitro* Mutagenesis of HCV E1 glycoprotein



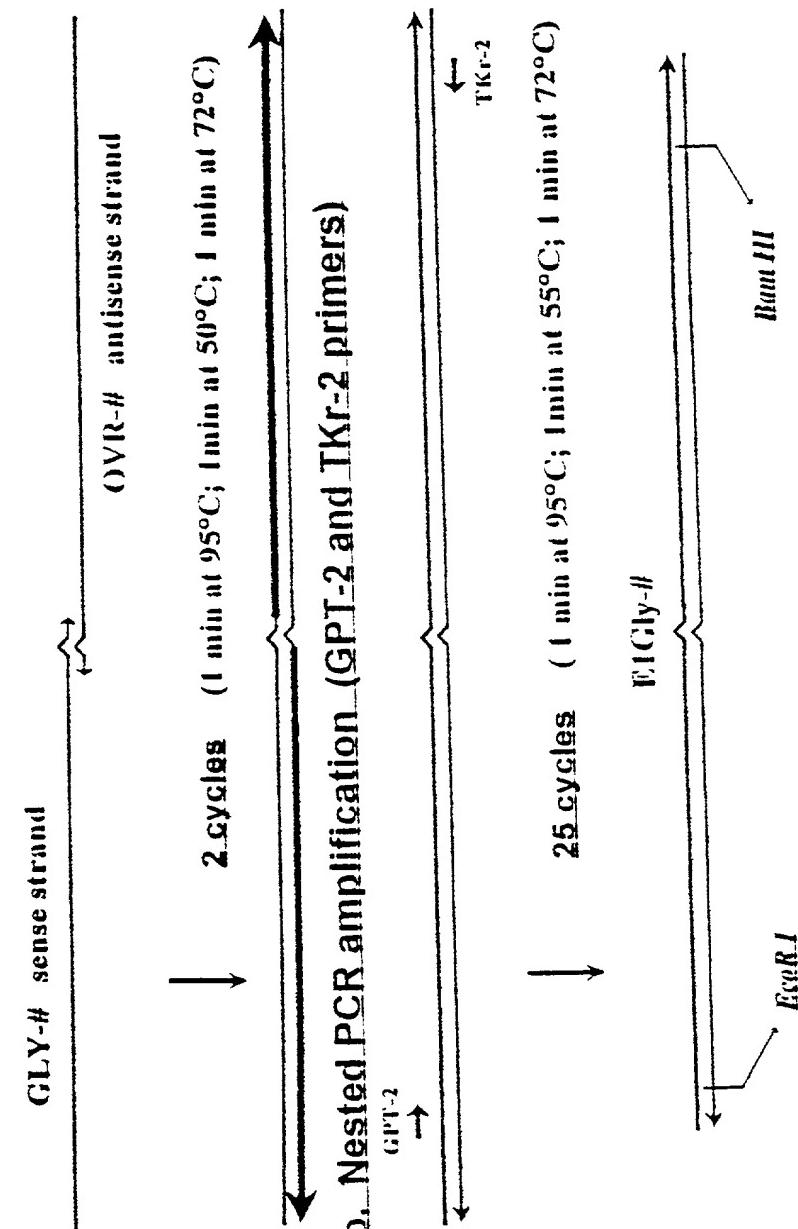
**1. First step of PCR amplification (Gly-# and Ovr-# primers)**



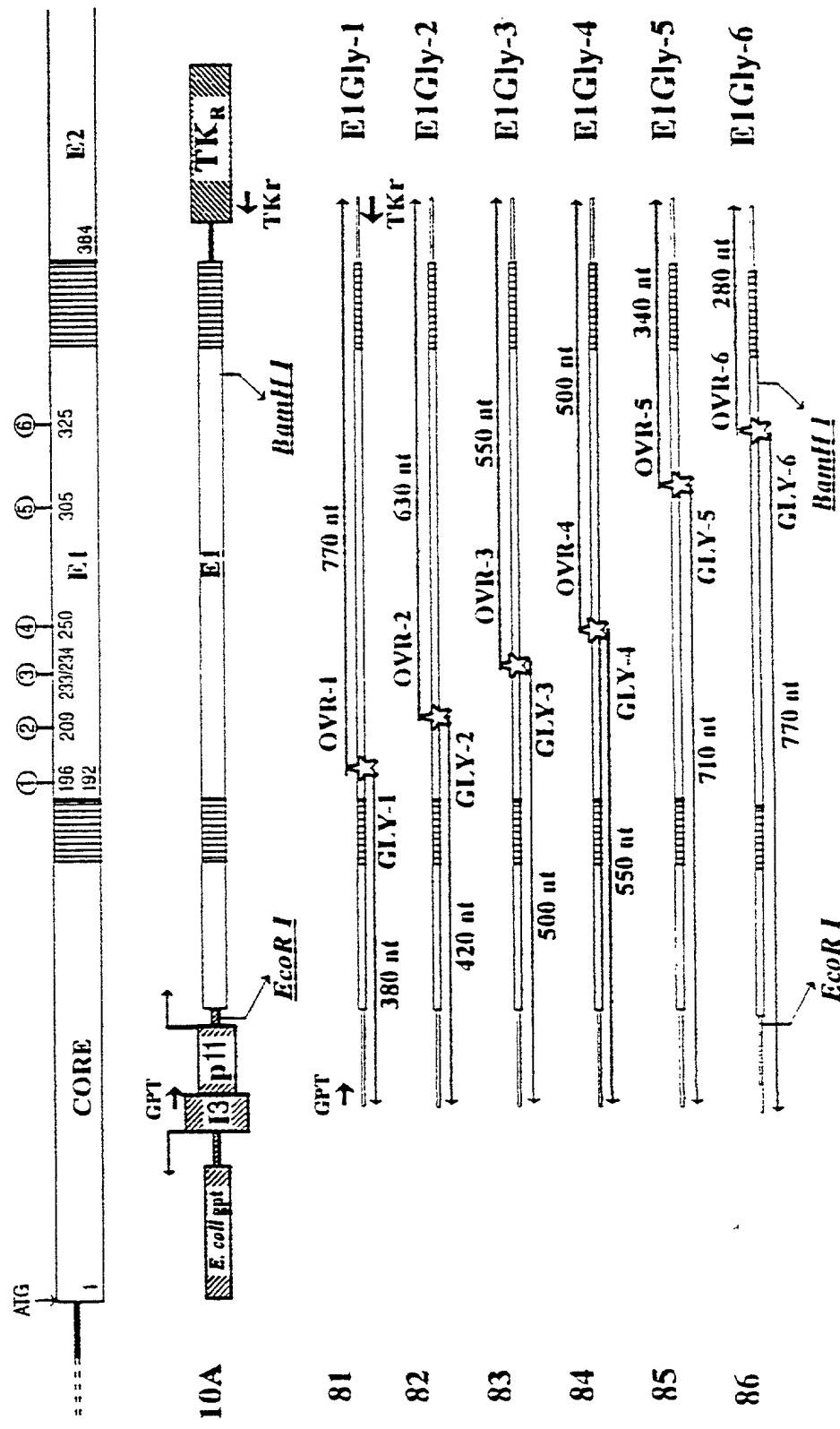
2. Overlap extension and nested PCR

a. Overlap extension

Fig. 42B



**Fig. 43 *In Vitro* Mutagenesis of HCV E1 glycoprotein**



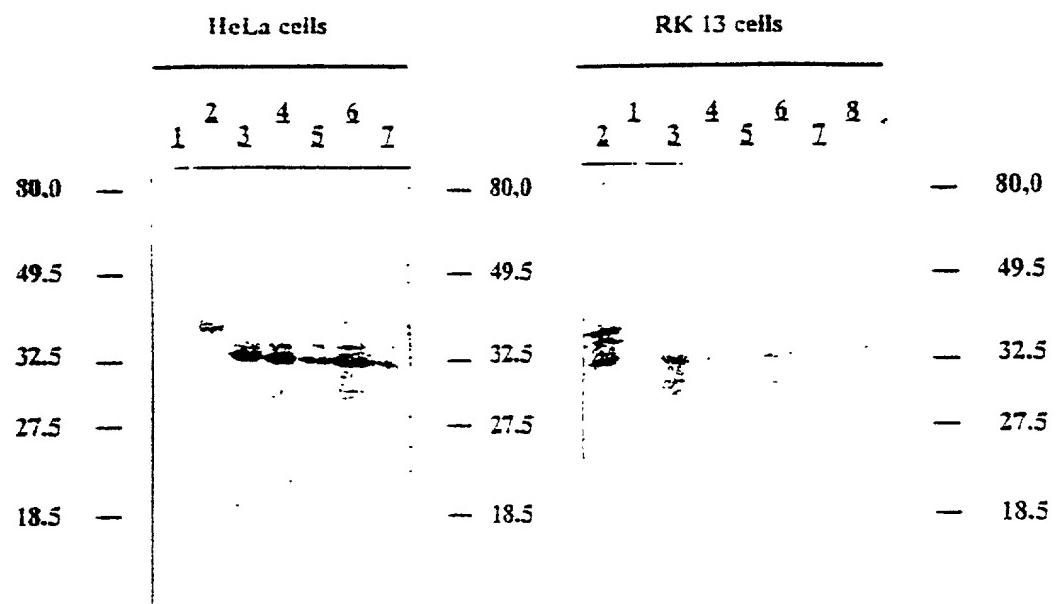


Fig. 44A

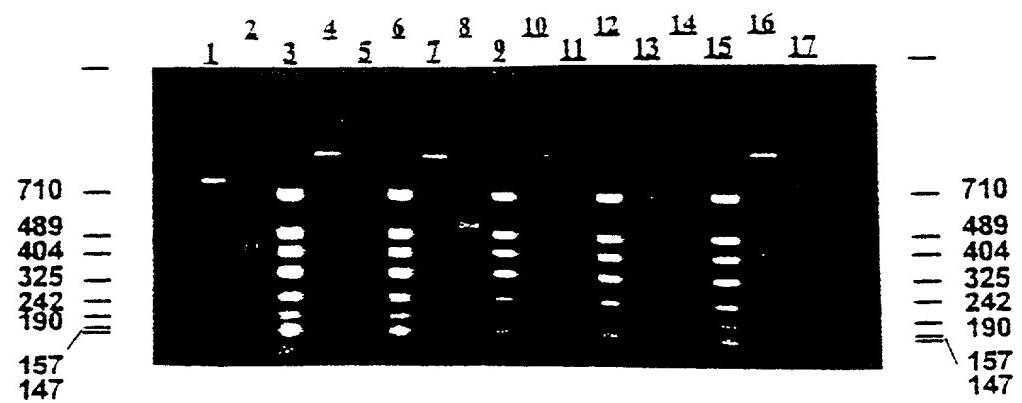


Fig. 44B

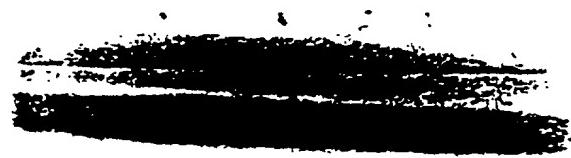


Fig. 45

KDa 19 67 43 29 18  
| | | | |

A small, dark, irregularly shaped object, possibly a piece of debris or a fossil specimen, positioned below the numerical sequence.

Fig. 46

Fig. 47

	age (years)	HCV infection (years)	genotype
Marcel	17	9	1a
Peggy	21	16.5	1b
Ferma	15	9	1a
Yoran	12	none	
Marti	12	none	

chronic carriers (strong T-cell adjuvant)

↓ ↓ ↓ ↓ ↓ ↓      ↓ ↓ ↓ ↓ ↓ ↓ 50 µg E1 dose

---

0 3 6 9 12 15      26 29 32 35 38 41 weeks

naive (alum)

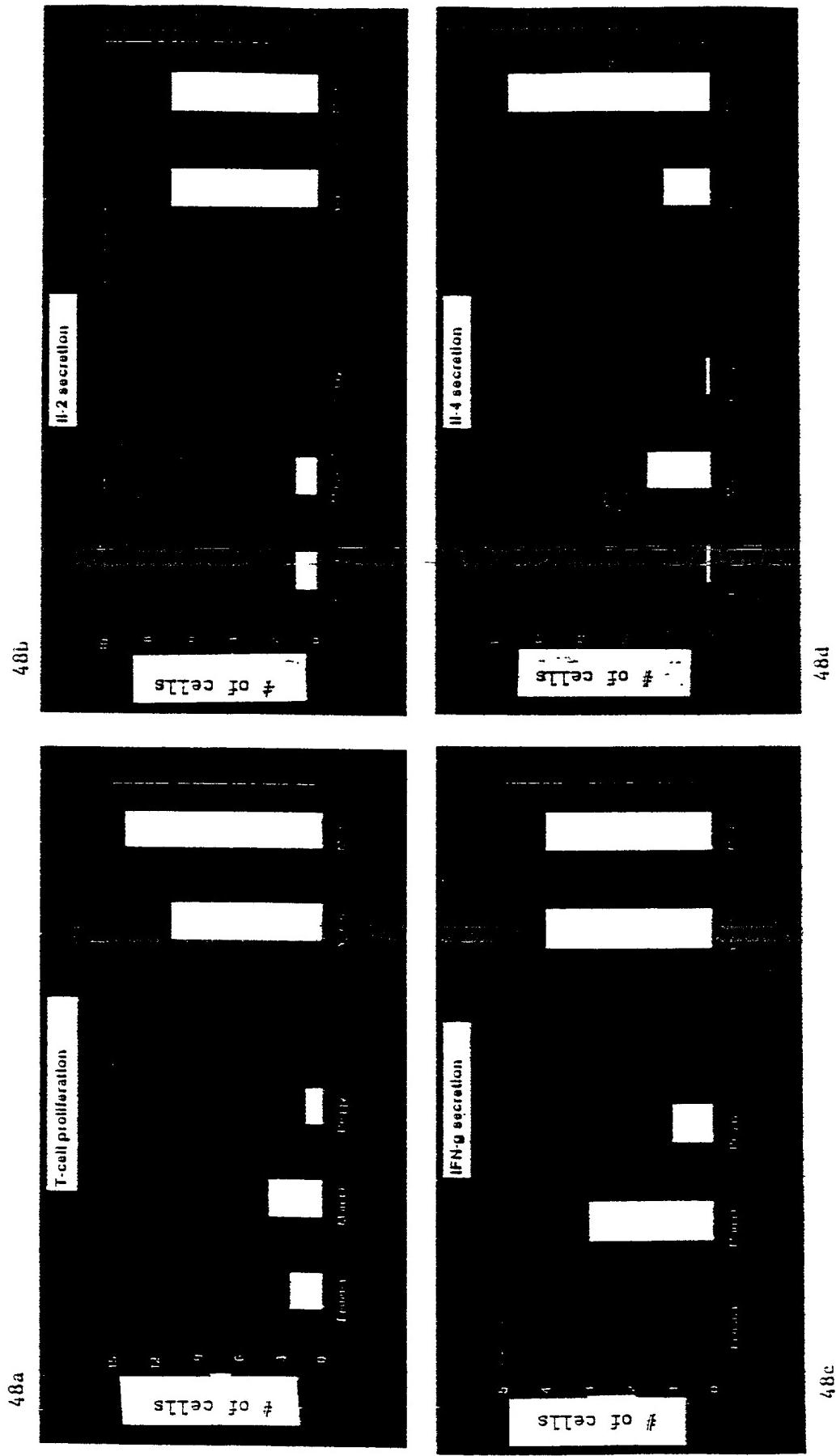
↓ ↓ ↓ ↓ ↓ ↓      50 µg E1 dose

---

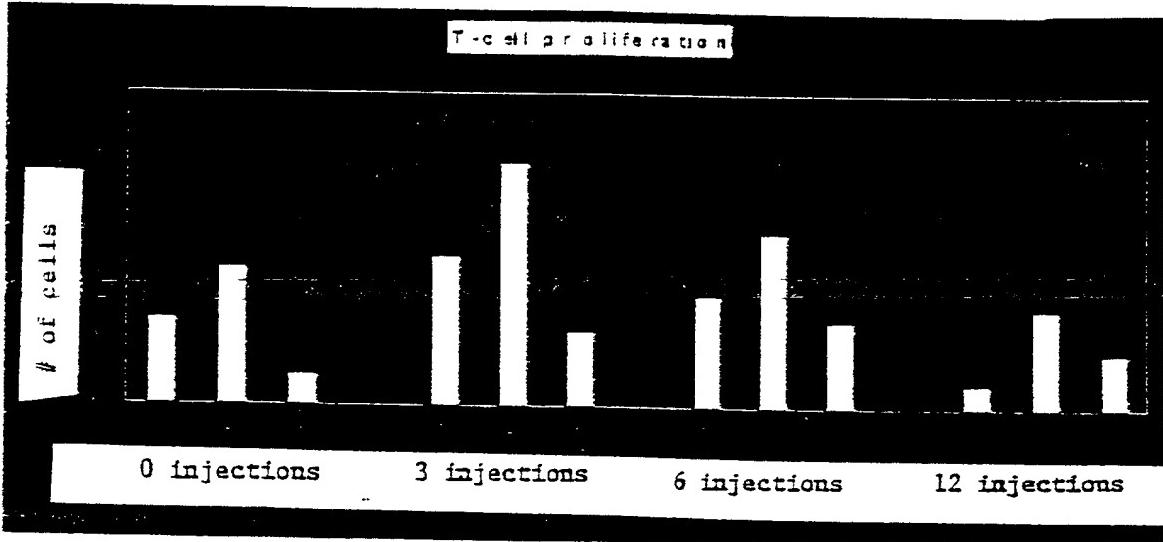
0 3 6 9 12 15      weeks

**Fig.**

48



**Fig.** 49



1 Fem m a, 2 Marcel, 3 Peggy

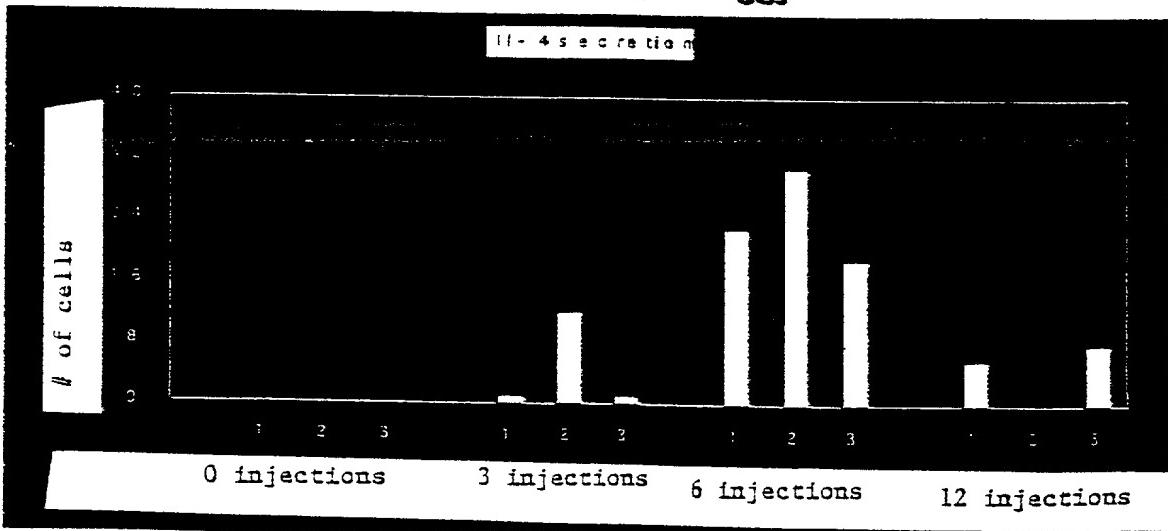
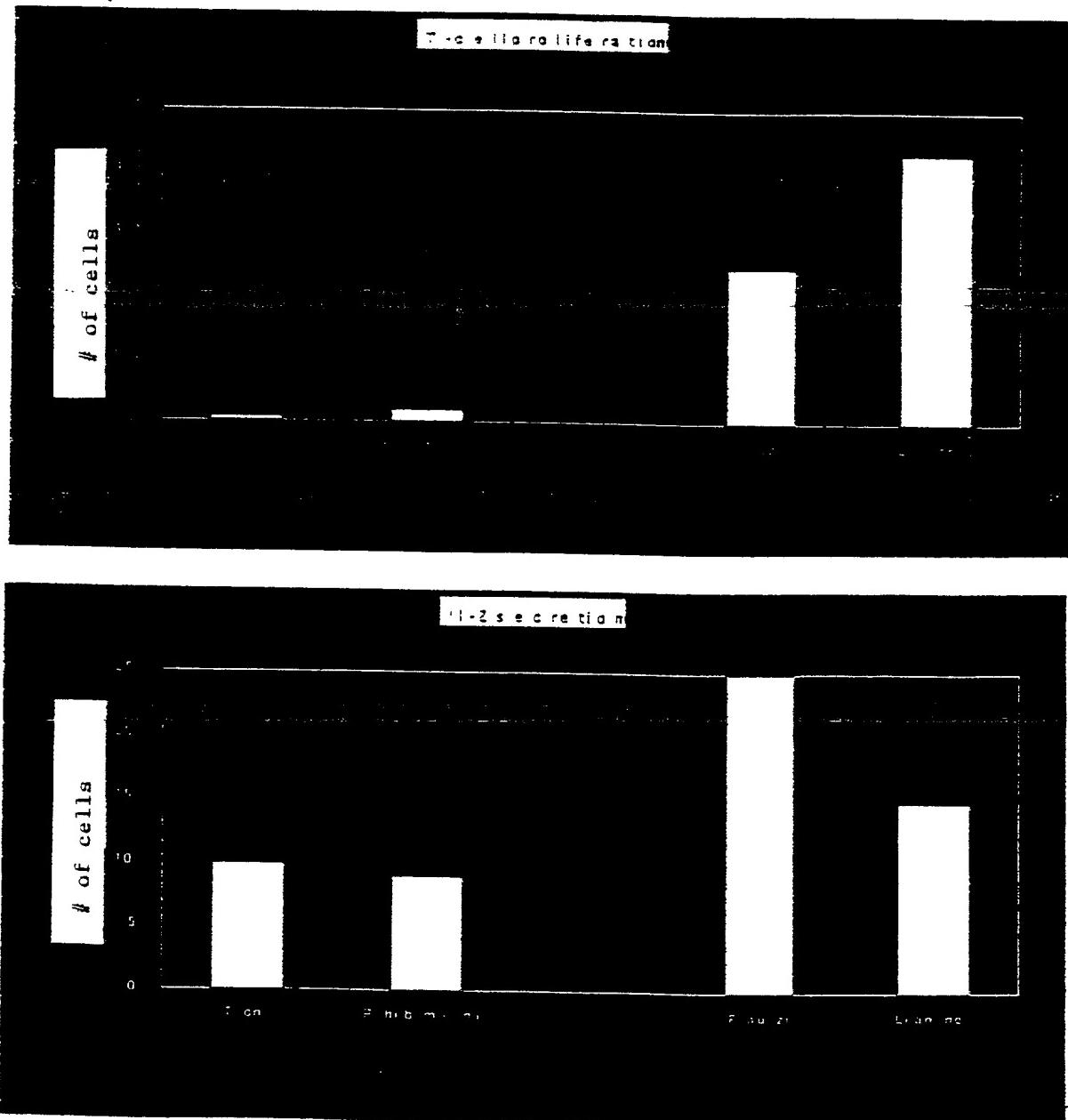


Fig. 50



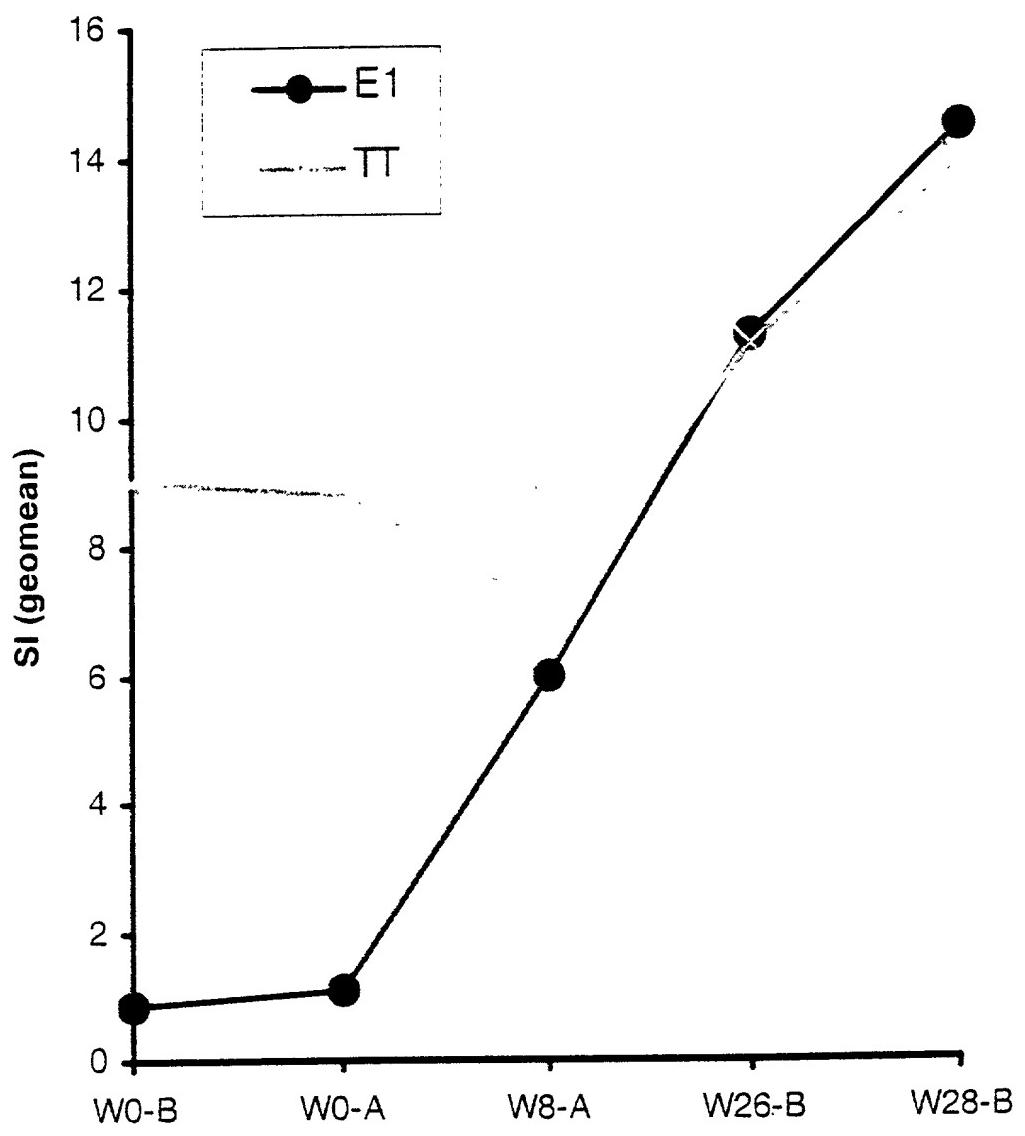


Fig 51

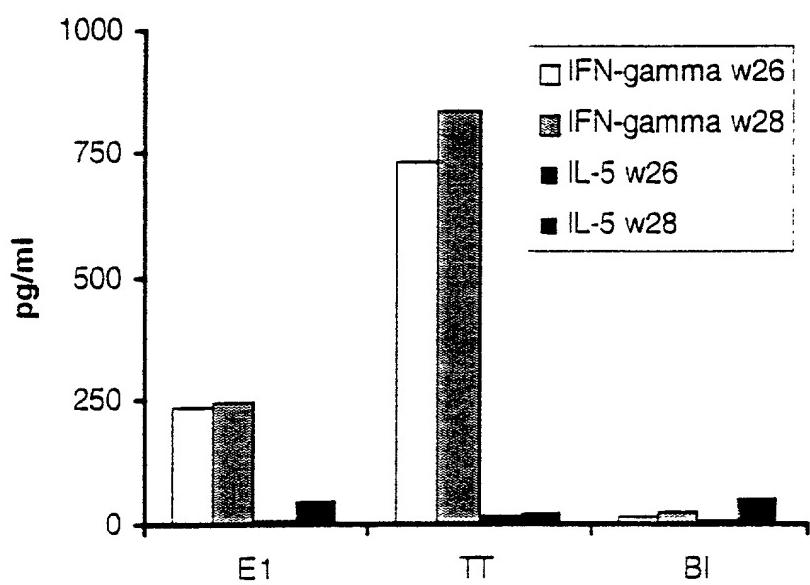
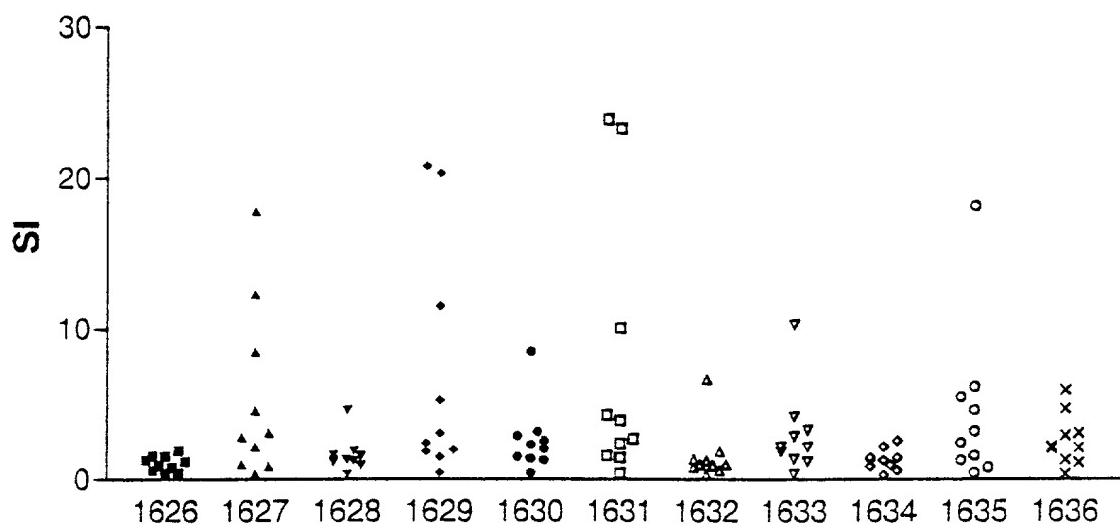


Fig 52

Fig 53

**vaccinated**



**controls**

